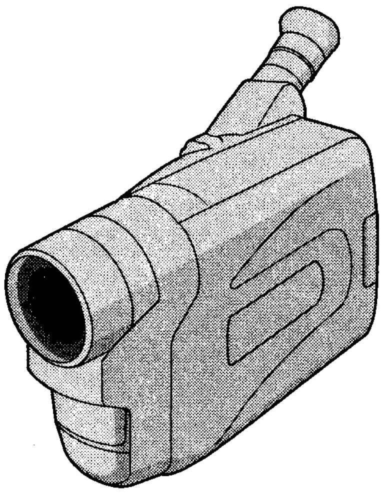
JVC

SERVICE MANUAL

COMPACT VHS CAMCORDER

GR-AX940U



Compact VHS

VHSC

SPECIFICATIONS

Camcorder

General

Format : VHS NTSC standard
Power source : DC 6.0 V ⎓
Power consumption : 5.4 W
Video light : 2.9 W
Signal system : NTSC-type
Video recording system
Luminance : FM recording
Color : Converted sub-carrier direct recording
Conforms to VHS standard
Cassette : VHSC cassette
Tape speed
SP : 33.35 mm/sec. (1-5/16 ips)
EP : 11.12 mm/sec. (7/16 ips)
Recording time (max.)
SP : 40 minutes
EP : 120 minutes (with TC-40)
Operating temperature : 0°C to 40°C (32°F to 104°F)
Operating humidity : 35% to 80%
Storage temperature : –20°C to 50°C (–4°F to 122°F)
Weight : Approx. 720 g (1.6 lbs)
Dimensions : 91 (W) x 119 (H) x 198 (D) mm
(3-8/5" x 4-11/16" x 7-13/16")
(with the viewfinder fully tilted downward)
Pickup : 1/4" format CCD
Lens : F1.6, f = 3.9 to 62.4 mm, 16:1 power zoom lens with auto iris and macro control, filter diameter 40.5 mm
Viewfinder : Electronic viewfinder with 0.55" color LCD
White balance adjustment : Auto/Manual adjustment

Connectors

JLIP : ø3.5 mm, 4-pole, mini-head jack (compatible with RC-5325 plug)
Video : 1 Vp-p, 75 Ω unbalanced, analog output
(via Video output connector)
Audio : –8 dBs, 1 kΩ analog output
(via Audio output connector)

AC Power Adapter/Charger AA-V15U

Power requirement
U.S.A. and Canada : AC 120 V∿, 60 Hz
Other countries : AC 110 V to 240 V∿, 50/60 Hz
Power consumption : 23 W
Output
Charge : DC 8.5 V ⎓ , 1.3 A
VTR : DC 6.3 V ⎓ , 1.8 A
Charging system : Constant current, peak detection, timer controlled
Dimensions : 140 (W) x 42 (H) x 68 (D) mm
(5-9/16" x 1-11/16" x 2-11/16")
Weight : Approx. 300 g (0.71 lbs)

Cassette Adapter C-P7U

Dimensions : 188 (W) x 25 (H) x 104 (D) mm
(7-7/16" x 1" x 4-1/8")
Weight : Approx. 240 g (0.53 lbs)
Accessory : "AA (R6)"-size battery x 1

Provided Accessories .... ☞ pg. 6

Optional Accessories

- **Battery Packs BN-V12U, BN-V20U, BN-V856U**
- **Car Battery Charger BH-V3U**
- **Battery Charger BH-VC10U**
- **Car Battery Cord AP-V7U**
- **Compact VHS-C Cassettes TC-40/30/20**
- **Active Carrying Bag CB-V7U**
- **Audio/Video Cable**
- **JLIP-to-PC Cable VC-VJ49WU**
- **JLIP Video Producer**
- **Brush Kit**

Some acccessories are not available in some areas. Please consult your nearest JVC dealer for details on accessories and their availability.

Specifications shown are for SP mode unless otherwise indicated. E & O.E. Design and specifications subject to change without notice.

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Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

●Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▒) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

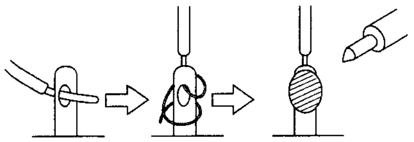


Fig.1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10-15 kg of force in any direction will not loosen it.

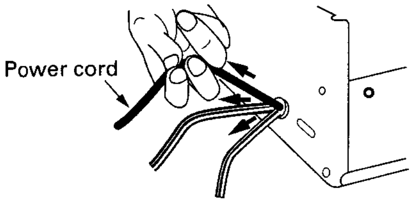


Fig.2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.

    1) **Connector part number :** E03830-001
    2) **Required tool :** Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

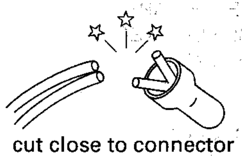


Fig.3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

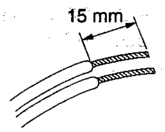


Fig.4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

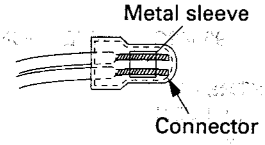


Fig.5

(4) As shown in Fig.6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

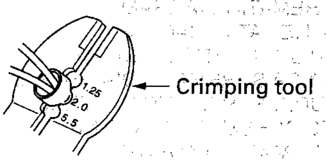


Fig.6

(5) Check the four points noted in Fig.7.

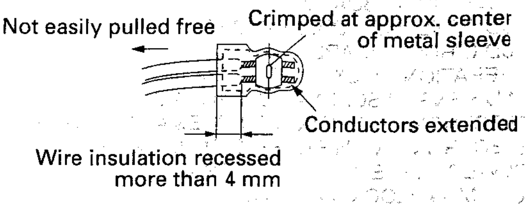

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig.7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. **Insulation resistance test**
   Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. **Dielectric strength test**
   Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. **Clearance distance**
   When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

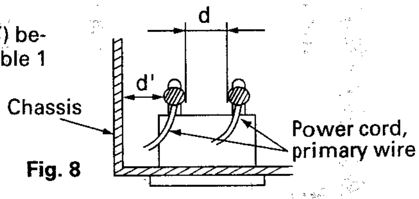


Fig. 8

4. **Leakage current test**
   Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
   Measuring Method : (Power ON)
   Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

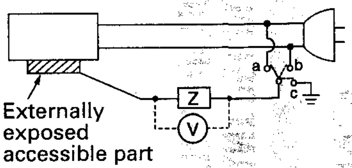


Fig. 9

5. **Grounding (Class I model only)**
   Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
   Measuring Method:
   Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

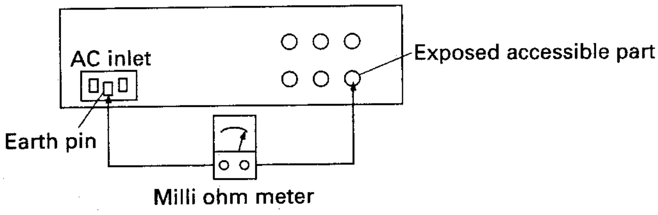


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 miute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	1 MΩ ≦ R ≦ 12 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ/500 V DC	AC 3 kV 1 minute (Class 2) AC 1.5 kV 1 minute (Class 1)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

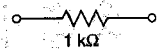
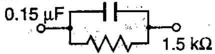
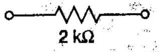
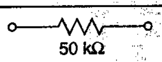
AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	 1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	 0.15 µF 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	 2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		 50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

Dear Customer,
Thank you for purchasing the JVC Compact VHS camcorder. Before use, please read the safety information and precautions contained in the following pages to ensure safe use of this product.

Using This Instruction Manual

- All major sections and subsections are listed in the Table Of Contents (☞ pg. 7).
- Notes appear after most subsections. Be sure to read these as well.
- Basic and advanced features/operation are separated for easier reference.

It is recommended that you . . .

..... refer to the Index (☞ pgs. 47 – 50) and familiarize yourself with button locations, etc. before use.

..... read thoroughly the Safety Precautions and Safety Instructions that follow. They contain extremely important information regarding the safe use of this product.

You are recommended to carefully read the cautions on pages 51 and 52 before use.

SAFETY PRECAUTIONS

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

The AA-V15U AC Power Adapter/Charger should be used with:
AC 120 V∿, 60 Hz in the USA and Canada,
AC 110 – 240 V∿, 50/60 Hz in other countries.

CAUTION (applies to the AA-V15U)
TO PREVENT ELECTRIC SHOCK MATCH WIDE BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.

ATTENTION (s'applique à l'AA-V15U)
POUR ÉVITER LES CHOCS ÉLECTRIQUES, INTRODUIRE LA LAME LA PLUS LARGE DE LA FICHE DANS LA BORNE CORRESPONDANTE DE LA PRISE ET POUSSER JUSQU'AU FOND.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

Warning on lithium battery
(for clock operation)
The battery used in this device may present a fire or chemical burn hazard if mistreated. Do not recharge, disassemble, heat above 100°C (212°F) or incinerate.
Replace the battery with Maxell, Panasonic (Matsushita Electric), Sanyo or Sony CR2025; use of another battery may present a risk of fire or explosion.

- ■ Dispose of used battery promptly.
- ■ Keep away from children.
- ■ Do not disassemble and do not dispose of in fire.

NOTES:

- *The rating plate (serial number plate) and safety caution are on the bottom and/or the back of the main unit.*
- *The rating plate (serial number plate) of the AC Power Adapter/Charger is on its bottom.*

This Class B digital apparatus meets all requirements of the Canadian Interference – Causing Equipment Regulations.

"Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada."

This camcorder is designed to be used with NTSC-type color television signals. It cannot be used for playback with a television of a different standard. However, live recording and viewfinder playback are possible anywhere. Use the BN-V11U/V12U/V20U/V856U battery packs and, to recharge them, the provided multi-voltage AC Power Adapter/Charger. (An appropriate conversion adapter may be necessary to accommodate different designs of AC outlets in different countries.)

ATTENTION:
The product that you have purchased is powered by a rechargeable battery. The battery is recyclable. At the end of its useful life, under various state and local laws, it may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste officials for details in your area for recycling options or proper disposal.

IMPORTANT PRODUCT SAFETY INSTRUCTIONS

Electrical energy can perform many useful functions. But improper use can result in potential electrical shock or fire hazards. This product has been engineered and manufactured to assure your personal safety. In order not to defeat the built-in safeguards, observe the following basic rules for its installation, use and servicing.

ATTENTION:
Follow and obey all warnings and instructions marked on your product and its operating instructions. For your safety, please read all the safety and operating instructions before you operate this product and keep this manual for future reference.

INSTALLATION

1. Grounding or Polarization

(A) Your product may be equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature.
If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.

(B) Your product may be equipped with a 3-wire grounding-type plug, a plug having a third (grounding) pin. This plug will only fit into a grounding-type power outlet. This is a safety feature.
If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.

2. Power Sources

Operate your product only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company. If your product is intended to operate from battery power, or other sources, refer to the operating instructions.

3. Overloading

Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in a risk of fire or electric shock.

4. Power Cord Protection

Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.

5. Ventilation

Slots and openings in the cabinet are provided for ventilation. To ensure reliable operation of the product and to protect it from overheating, these openings must not be blocked or covered.

- Do not block the openings by placing the product on a bed, sofa, rug or other similar surface.
- Do not place the product in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

6. Wall or Ceiling Mounting

The product should be mounted to a wall or ceiling only as recommended by the manufacturer.

ANTENNA INSTALLATION INSTRUCTIONS

1. Outdoor Antenna Grounding

If an outside antenna or cable system is connected to the product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

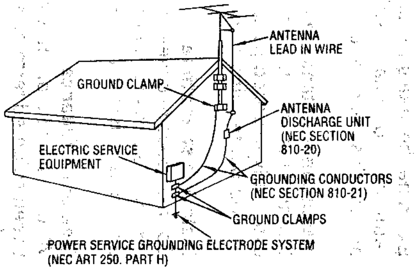
2. Lightning

For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges.

3. Power Lines

An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.

EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE, ANSI/NFPA 70



ANTENNA LEAD IN WIRE
GROUND CLAMP
ANTENNA DISCHARGE UNIT (NEC SECTION 810-20)
ELECTRIC SERVICE EQUIPMENT
GROUNDING CONDUCTORS (NEC SECTION 810-21)
GROUND CLAMPS
POWER SERVICE GROUNDING ELECTRODE SYSTEM (NEC ART 250. PART H)

NEC – NATIONAL ELECTRICAL CODE

USE

1. Accessories

To avoid personal injury:

- Do not place this product on an unstable cart, stand, tripod, bracket or table. It may fall, causing serious injury to a child or adult, and serious damage to the product.
- Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer or sold with the product.
- Use a mounting accessory recommended by the manufacturer and follow the manufacturer's instructions for any mounting of the product.
- Do not try to roll a cart with small casters across thresholds or deep-pile carpets.

2. Product and Cart Combination

A product and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.

PORTABLE CART WARNING
(Symbol provided by RETAC)

3. Water and Moisture

Do not use this product near water—for example, near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement, or near a swimming pool and the like.

4. Object and Liquid Entry

Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

5. Attachments

Do not use attachments not recommended by the manufacturer of this product as they may cause hazards.

6. Cleaning

Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

7. Heat

The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

SERVICING

1. Servicing

If your product is not operating correctly or exhibits a marked change in performance and you are unable to restore normal operation by following the detailed procedure in its operating instructions, do not attempt to service it yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

2. Damage Requiring Service

Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- **a.** When the power supply cord or plug is damaged.
- **b.** If liquid has been spilled, or objects have fallen into the product.
- **c.** If the product has been exposed to rain or water.
- **d.** If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
- **e.** If the product has been dropped or damaged in any way.
- **f.** When the product exhibits a distinct change in performance—this indicates a need for service.

3. Replacement Parts

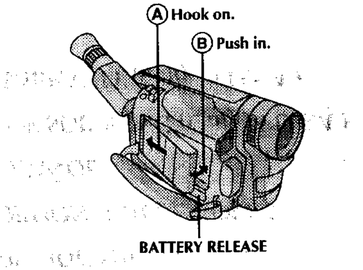
When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.

4. Safety Check

Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in safe operating condition.

QUICK OPERATION GUIDE

SUPPLY POWER



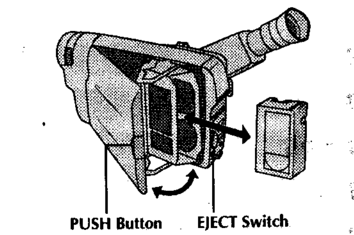
Using the battery pack

Hook its end to the camcorder (Ⓐ) and push the battery pack in until it locks in place (Ⓑ).
(Charging procedure, ☞ pg. 8)

To remove the battery pack

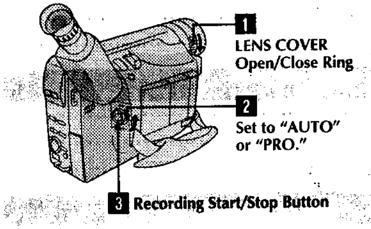
Slide **BATTERY RELEASE** and pull out the battery pack.

INSERTING A VIDEO CASSETTE



1. Slide **EJECT** to open the cassette holder.
2. Insert a video cassette.
3. Press **PUSH** to close the cassette holder.
(For more details, ☞ pg. 13)

SHOOTING

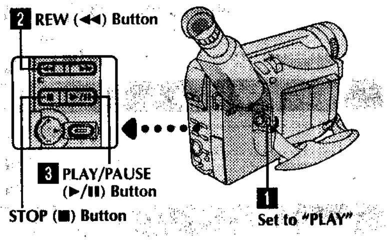

1 LENS COVER Open/Close Ring
2 Set to "AUTO" or "PRO."
3 Recording Start/Stop Button

1. Turn the **LENS COVER** Open/Close Ring to open the lens cover.
2. Set the Power Switch to "AUTO" or "PRO.".
— The power lamp will light and an image will appear.
3. Press the Recording Start/Stop Button.
— Recording starts.

- To stop recording temporarily, momentarily press the Recording Start/Stop Button once again.

(For more details, ☞ pgs. 16, 17)

PLAYBACK



1. Set the Power Switch to "PLAY".
2. Press **REW** (◄◄).
— The tape will automatically stop at the beginning of the tape.
3. Press **PLAY/PAUSE** (►/❚❚).
— Playback starts and the playback picture appears.

- To stop playback, press **STOP** (■).
(For more details, ☞ pg.38.)

Or simply play back the tape on a VHS VCR using the Cassette Adapter (VHS Playpak). ☞ pg. 41

REMEMBER

The Logical Choice

Compact VHS
VHS-C

The only compact video cassettes that can be used with your VHS VCR*

*with VHS Playpak

Program AE with Special Effects (☞ pg. 24, 25)

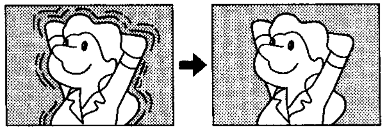
- Electronic Fog Filter
- ND Effect
- Sepia
- Twilight
- Sports
- Nega/Posi
- 1/2000 sec. High Speed Shutter

Snapshot (☞ pg. 22)

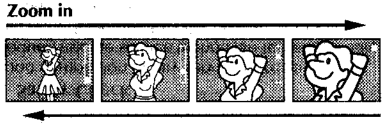
Menu Adjustment (☞ pg. 28, 29, 30)

Integrated Auto Light (☞ pg. 21)

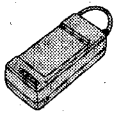
Picture Stabilizer (☞ pg. 20)



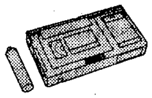
Digital Hyper Zoom (☞ pg. 18)



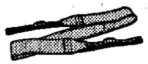
PROVIDED ACCESSORIES



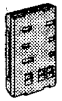
- AC Power Adapter/ Charger AA-V15U



- Cassette Adapter (VHS Playpak) C-P7U



- Shoulder Strap



- Battery Pack BN-V11U

- Lithium Battery CR2025 x 1 (for clock operation)

- DC Cord

Cassettes marked VHS-C can be used with this camcorder.

GETTING STARTED 8 - 15
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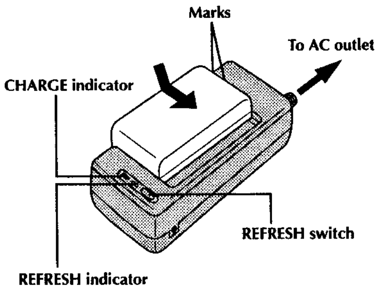


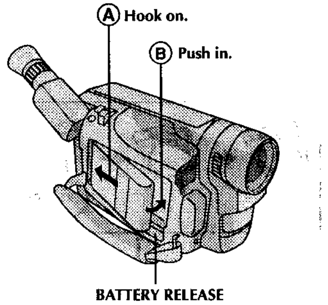
REFRESH

The AC Power Adapter/Charger features a REFRESH function that allows you to fully discharge the battery pack before recharging.

Perform the REFRESH function after no less than 5 chargings.

To discharge the battery . . .

.... attach the battery pack to the adapter as shown in the above illustration. Then push REFRESH. The REFRESH indicator lights when discharging starts, and goes out when discharging is complete.



ATTENTION:

Before detaching the power source, make sure that the camcorder's power is turned off. Failure to do so can result in a camcorder malfunction.

Power

This camcorder's 3-way power supply system lets you choose the most appropriate source of power.

NOTES:

- *No function is available without power supply.*
- *Use only the specified power supply.*
- *Do not use provided power supply units with other equipment.*

CHARGING THE BATTERY PACK

1 SUPPLY POWER

Connect the charger's AC power cord to a wall outlet.

2 ATTACH BATTERY PACK

Align the marks and slide the battery pack in the direction of the arrow until it locks in place.

- The CHARGE indicator begins blinking to indicate charging has started.

3 DETACH BATTERY PACK

When the CHARGE indicator stops blinking but stays lit, charging is finished. Slide the battery pack opposite the direction of the arrow.

Battery pack	Charging time	Discharging time
BN-V11U	approx. 1 hr. 10 min.	approx. 3 hrs. 30 min.
BN-V12U	approx. 1 hr. 10 min.	approx. 3 hrs. 30 min.
BN-V20U	approx. 1 hr. 50 min.	approx. 6 hrs. 40 min.

USING THE BATTERY PACK

1 ATTACH BATTERY PACK

Hook its end to the camcorder (Ⓐ) and push the battery pack in until it locks in place (Ⓑ) .

2 DETACH BATTERY PACK

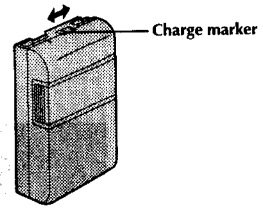
Slide **BATTERY RELEASE** and pull out the battery pack.

Battery pack	Approximate recording time (unit: min.)
BN-V11U	70 (40)
BN-V12U	70 (40)
BN-V20U	110 (65)

( ) : when the video light is on.

INFORMATION:

VU-V856KIT is a set composed of the BN-V856U battery pack and AA-V80U AC Power Adapter/Charger.
The BN-V856U battery pack provides approx. 7 hours of recording time when the video light is off. Also read thoroughly the VU-V856KIT's instruction manuals.
It is impossible to charge the BN-V856U battery pack using the provided AC Power Adapter/Charger. Use the optional AA-V80U AC Power Adapter/Charger.

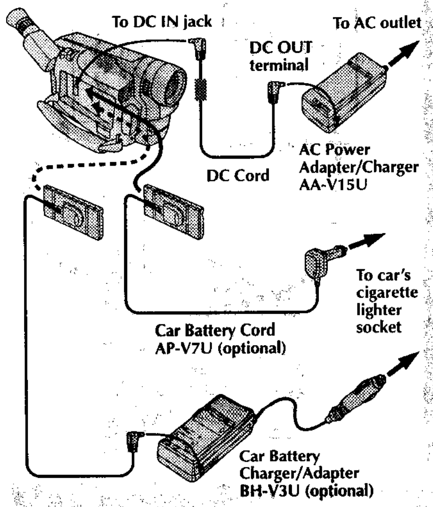


Charge Marker

A charge marker is provided on the battery pack to help you remember whether it has been charged or not. Two colors are provided (red and black)—you choose which one means charged and which means discharged.

NOTES:

- *The recording time per charge is affected by such factors as the time spent in Record-Standby mode and the frequency of zooming. It is safer to have spare battery packs to cover 3 times the planned shooting time.*
- *Charging times noted on page 8 are for a fully discharged battery pack, and discharging times are for a fully charged battery pack.*
- *Charging and discharging times vary according to the ambient temperature and the status of the battery pack.*
- *Remember to set the charge marker after charging a battery pack or after detaching a discharged one from your camcorder.*
- *Perform the REFRESH function after no less than 5 chargings.*
- *While the AC Power Adapter/Charger's power cord is disconnected from the AC outlet, it is possible to discharge the battery by pressing the REFRESH switch. During that time, the AC Power Adapter/Charger does not charge the battery. When discharging is complete, detach the battery from the AC Power Adapter/Charger to store it.*
- *High temperatures can damage the battery pack, so use only where good ventilation is available. Do not allow it to discharge in a container, such as a bag.*
- *If you stop recharging or discharging part way through, make sure to remove the battery pack before unplugging the adapter's AC cord.*
- *Remove the battery pack from the adapter immediately after discharging.*
- *To avoid interference with reception, do not use the AC Power Adapter/Charger near a radio.*
- *Make sure you unplug the DC cord before charging or discharging the battery pack.*
- *The CHARGE indicator may not light properly with a brand new battery pack, or with one that has been stored for an extended period. In this case, remove and reattach the battery pack and recharge it. The CHARGE indicator should blink during recharging. If it doesn't, contact your nearest JVC dealer.*


To DC IN jack
To AC outlet
DC OUT terminal
AC Power Adapter/Charger AA-V15U
DC Cord
To car's cigarette lighter socket
Car Battery Cord AP-V7U (optional)
Car Battery Charger/Adapter BH-V3U (optional)

USING AC POWER

Use the AC Power Adapter/Charger (connect as shown in the illustration to the left).

NOTES:

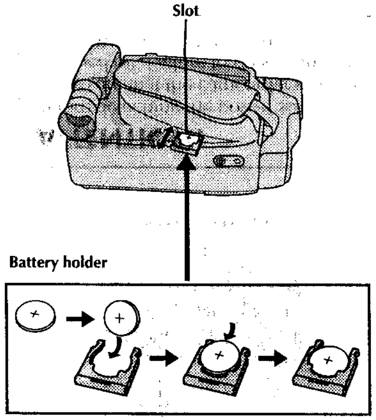
- *The provided AC Power Adapter/Charger features automatic voltage selection in the AC range from 110 V to 240 V.*
- *When using the DC cord, make sure you connect the end of the cord with the core filter to the camcorder. The core filter reduces interference.*

USING A CAR BATTERY

Use the optional Car Battery Cord or Car Battery Charger/Adapter (connect as shown in the illustration to the left).

NOTES:

- *When using the car battery, leave the engine idling.*
- *The optional Car Battery Charger (BH-V3U) can also be used to charge the battery pack (except BN-V20U/V856U).*
- *When using the optional Car Battery Charger or Car Battery Cord (AP-V7U), refer to the respective instruction booklet.*



Clock (Lithium) Battery Insertion/Removal

This battery is necessary for clock operation and to perform date/time settings.

1 SWITCH OFF POWER

Switch off the unit's power and remove the power supply unit (battery pack, AC Power Adapter/Battery Charger, etc.).

2 REMOVE BATTERY HOLDER

Pull out the battery holder.

3 INSERT BATTERY IN HOLDER

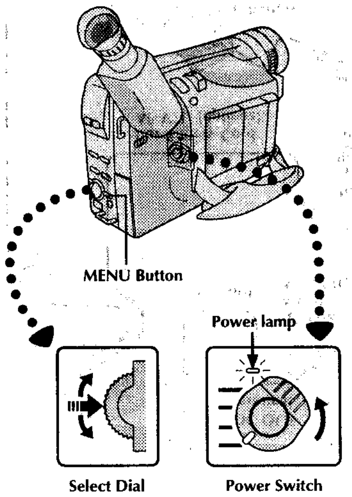
Insert the battery in the holder, and be sure to have the "+" mark visible.

4 RE-INSERT HOLDER

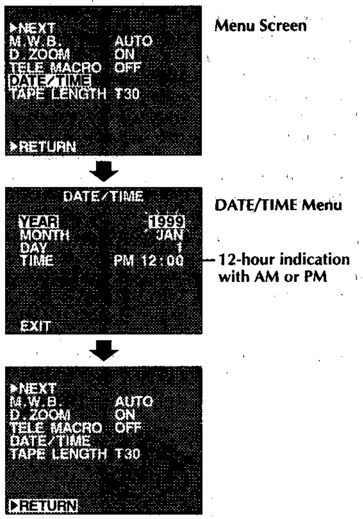
Slide the holder back into the slot until you hear a click.

NOTE:

See "SAFETY PRECAUTIONS" (☞ pg. 2) for information on safe handling of lithium batteries.



Display



```
▶NEXT
M.W.B.        AUTO
D.ZOOM        ON
TELE MACRO    OFF
DATE/TIME
TAPE LENGTH   T30

▶RETURN
```

```
     DATE/TIME
YEAR          1999
MONTH          JAN
DAY              1
TIME      PM 12:00

EXIT
```

```
▶NEXT
M.W.B.        AUTO
D.ZOOM        ON
TELE MACRO    OFF
DATE/TIME
TAPE LENGTH   T30

▶RETURN
```

Date/Time Settings

1 ACCESS MENU SCREEN

Set the Power Switch to "PRO.", then press **MENU**.

- The power lamp comes on.

2 SELECT FUNCTION

Rotate the Select Dial to move the highlight bar to "DATE/TIME", then press it. The DATE/TIME Menu appears.

- If you decide you want to return the date and time to the previous settings, rotate the Select Dial to move the highlight bar to "EXIT" and press it, then go to step **6**.
- If you want to set only the time without changing the date, go to step **4**.

3 SET DATE

Rotate the Select Dial to move the highlight bar to the item you want to set and then press it. When the setting begins blinking, rotate the Select Dial until the correct setting appears and then press it. The setting stops blinking.

- Repeat this procedure until you're satisfied with the Date settings ("YEAR", "MONTH" and "DAY").

4 SET TIME

Rotate the Select Dial to move the highlight bar to "TIME" and then press it. When the hour setting begins blinking, rotate the Select Dial until the correct setting appears and then press it. When the hour setting stops blinking and the minute setting begins blinking, rotate the Select Dial until the correct setting appears and then press it. The minute setting stops blinking.

5 START CLOCK OPERATION

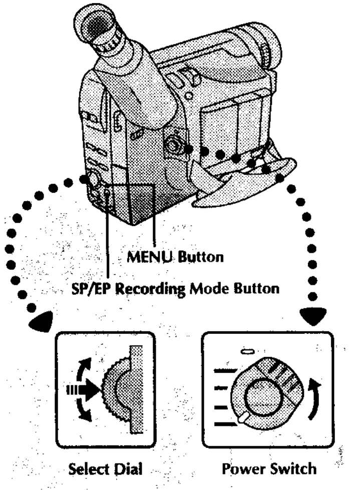
When none of these settings ("YEAR", "MONTH", "DAY", "TIME") blinks, rotate the Select Dial to move the highlight bar to "EXIT", and press it. The Menu Screen reappears with the highlight bar on "RETURN".

6 CLOSE MENU SCREEN

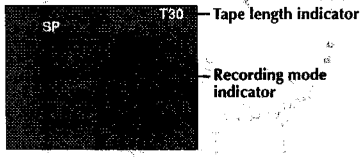
Press the Select Dial.

NOTE:

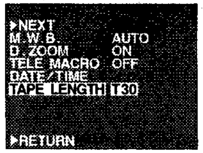
To display the date and time in the camcorder's display and on a connected TV, see "Date/Time Insert" (☞ pg. 26).


MENU Button
SP/EP Recording Mode Button
Select Dial
Power Switch

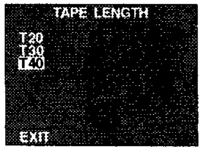
Viewfinder


SP
T30
Tape length indicator
Recording mode indicator

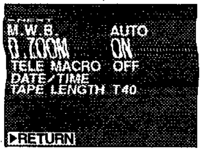
Display


▶NEXT
M.W.B. AUTO
D.ZOOM ON
TELE MACRO OFF
DATE/TIME
TAPE LENGTH T30
▶RETURN

Menu Screen


TAPE LENGTH
T20
T30
T40
EXIT

TAPE LENGTH Setting Menu


M.W.B. AUTO
D.ZOOM ON
TELE MACRO OFF
DATE/TIME
TAPE LENGTH T40
▶RETURN

Recording Mode Setting

Set depending on your preference.

1 SET RECORDING MODE

First set the Power Switch to "AUTO" or "PRO.". Press **SP/EP** for more than 1 second. "SP" (Standard Play) provides higher picture and sound quality and is better for dubbing, while "EP" (Extended Play) is more economical, providing three times the recording time.

NOTE:

If the recording mode is switched during recording, the playback picture will be blurred at the switching point.

Tape Length Setting

Set the tape length according to the length of the tape used.

1 ACCESS MENU SCREEN

First set the Power Switch to "PRO.". Press **MENU**.

2 SELECT FUNCTION

Rotate the Select Dial to move the highlight bar to "TAPE LENGTH", then press it. The TAPE LENGTH Setting Menu appears.

3 SET TAPE LENGTH

Rotate the Select Dial to move the highlight bar to the correct setting. T20=20 minutes of recording time, T30=30 minutes, and T40=40 minutes (in SP).

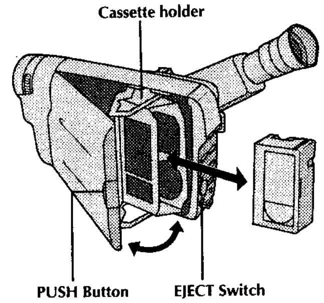
- If you decide you want to return the tape length to the previous setting, rotate the Select Dial to move the highlight bar to "EXIT".

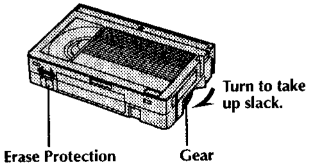
4 CLOSE MENU SCREEN

Press the Select Dial. The Menu Screen reappears with the highlight bar on "RETURN". Press the Select Dial again to close the Menu Screen.

NOTE:

The tape remaining time (☞ pg. 17) displayed in the viewfinder is correct only if the correct tape length has been selected.


Cassette holder
PUSH Button
EJECT Switch


Turn to take up slack.
Erase Protection
Gear

Loading/Unloading A Cassette

1 OPEN CASSETTE HOLDER

Slide **EJECT** until the holder opens. Do not use force to open.

2 INSERT/REMOVE CASSETTE

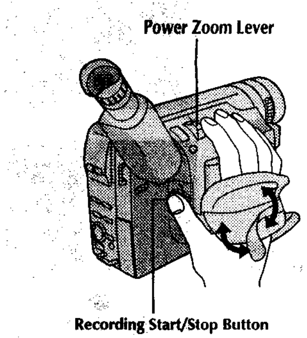
Make sure the label is facing outward.

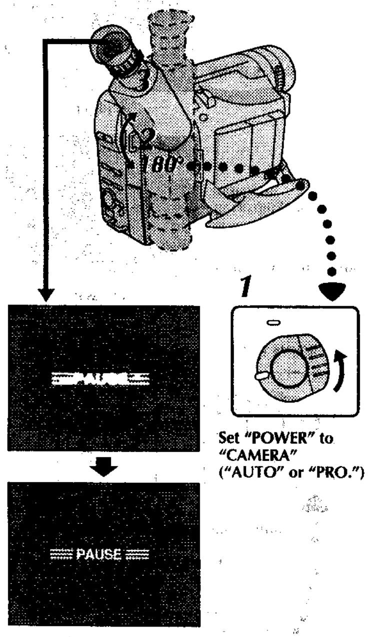
3 CLOSE CASSETTE HOLDER

Press **PUSH** and make sure the holder is closed and locked.

NOTES:

- *The cassette holder cannot be opened unless a power supply is attached.*
- *Make sure that the tape is not slack when loading the cassette. If there is any slack, turn the gear on the cassette in the direction of the arrow to take up the slack.*
- *Make sure the Erase Protection tab is in the position that allows recording. If not, slide the tab. Some cassettes have removable tabs. If the tab has been removed, cover the hole with adhesive tape.*
- *The cassette holder cannot be opened while the camcorder is in the record mode.*





Set "POWER" to "CAMERA" ("AUTO" or "PRO.")

Grip Adjustment

1 EXPAND LOOP
Separate the Velcro strip.

2 INSERT HAND
Pass your right hand through the loop and grasp the grip.

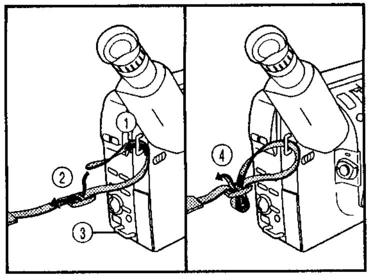
3 ADJUST STRAP LENGTH
Adjust so your thumb and fingers can easily operate the Recording Start/Stop Button and Power Zoom Lever. Refasten the Velcro strip.

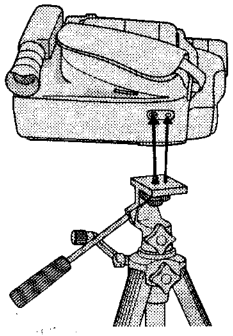
Viewfinder Adjustment

1 SELECT OPERATION MODE
Set the Power Switch to "CAMERA" ("AUTO" or "PRO.").

2 POSITION VIEWFINDER
Adjust the viewfinder manually for best viewability (see illustration at left).

3 ADJUST DIOPTER
Turn the Diopter Adjustment Control until the indications in the viewfinder are clearly focused.





Shoulder Strap Attachment

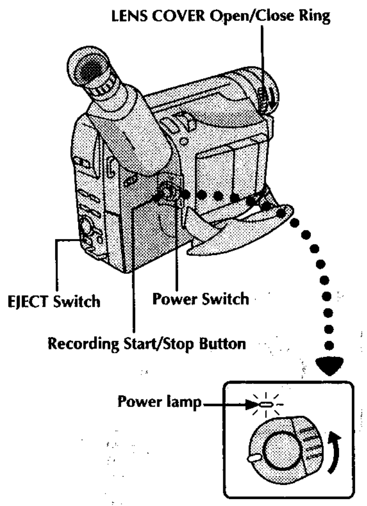
1 ATTACH STRAP
Following the illustration at left, thread the strap through the top of the eyelet ①, then fold it back and thread it through the buckle ②. Repeat the procedure to attach the other end of the strap to the other eyelet ③, making sure the strap is not twisted.

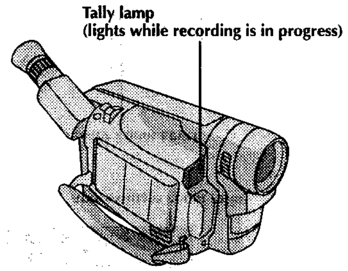
2 ADJUST LENGTH
Adjust as shown in the illustration at left ④.

Tripod Mounting

1 ALIGN AND TIGHTEN
Align the screw and camera direction stud on the tripod with the camera's mounting socket and stud hole. Then tighten the screw.

CAUTION:
When using a tripod, be sure to open and extend its legs fully to stabilize the camcorder. To prevent damage to the unit caused by falling over, do not use a small-sized tripod.





NOTE:

You should already have performed the procedures listed below. If not, do so before continuing.

- *Power (☞ pg. 8)*
- *Recording Mode Setting (☞ pg. 12)*
- *Tape Length Setting (☞ pg. 12)*
- *Grip Adjustment (☞ pg. 14)*
- *Viewfinder Adjustment (☞ pg. 14)*

1 LOAD A CASSETTE

Slide **EJECT** to open the cassette holder, then insert the cassette with the label facing out. Press **PUSH** to ensure the holder is closed and locked.

2 ENTER RECORD-STANDBY MODE

Turn the **LENS COVER** Open/Close Ring to open the lens cover, then set the Power Switch to "CAMERA" ("AUTO" or "PRO.").

- The power lamp lights and the camcorder enters the Record-Standby mode.
- The scene you are aimed at appears on the viewfinder screen, with the word "PAUSE" superimposed upon it.

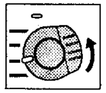
3 START SHOOTING

Press the Recording Start/Stop Button.

- "REC" appears in the viewfinder while recording is in progress.

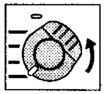
Power Switch Position

According to the Power Switch position you have selected, the following functions are available:



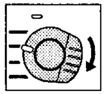
AUTO (Full Auto mode):

Allows you to record using NO special effects or manual adjustments. Suitable for standard recording.



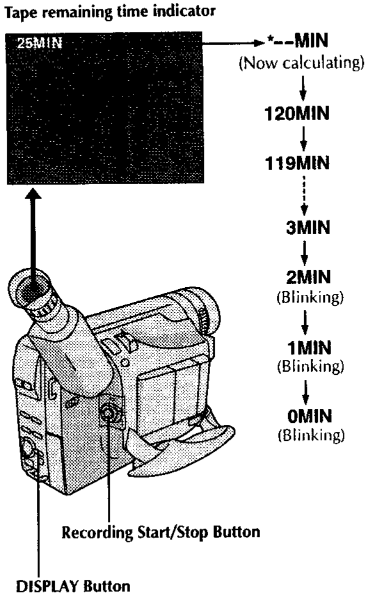
PRO. (PRO. mode):

Allows you to set various recording functions using the menus. If you want more creative capabilities than full auto recording, try this mode.



OFF:

Allows you to switch off the camcorder. After setting to this position, Manual Focus and Exposure Control are automatically reset to "AUTO".



4 STOP RECORDING

Press the Recording Start/Stop Button again to stop recording.

- The camcorder re-enters the Record-Standby mode.

NOTES:

- *The cassette holder cannot be opened unless a power supply is attached.*
- *There may be a delay after you slide **EJECT** until the holder opens. Do not use force.*
- *The tape remaining time is only displayed in the viewfinder as shown.*
- *The remaining time indicated in the viewfinder is approximate.*
- *The time required to calculate the remaining tape length, and the accuracy of the calculation, may vary according to the type of tape used.*
- *The tape remaining time indicator is correct only if the correct tape length has been selected (☞ pg. 12).*
- *"TAPE END" appears when the tape reaches its end, and the power goes off automatically if left in this condition for 5 minutes. "TAPE END" also appears when a cassette whose tape is already at its end is loaded.*
- *If the Record–Standby mode continues for 5 minutes, the camcorder's power shuts off automatically. Set the Power Switch to "POWER OFF", and then back to "CAMERA" to turn the camcorder on again.*
- *If the Recording Start/Stop button is pressed after the Record-Standby mode has continued for over 5 minutes, recording may not start immediately.*
- *If you are recording on a cassette from the middle (such as when a tape is removed and re-inserted during recording), use the Retake function (☞ pg. 19) to find the end of the last recording so you don't erase any of it.*
- *The LENS COVER warning blinks for about 5 seconds when the camcorder is turned on with the cover closed.*
- *While shooting, sound is not heard from the speaker.*
- *To turn the tally lamp off during recording, refer to pgs. 28 and 30.*

Viewfinder Indications

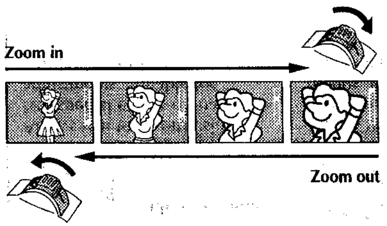
By pressing **DISPLAY**, you can make the following, indications appear/disappear from the camcorder's display: cassette warning, tape remaining time, battery pack remaining power indicator and tape length indicator (☞ pg. 47).

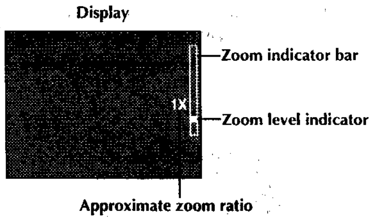
1 PRESS DISPLAY BUTTON

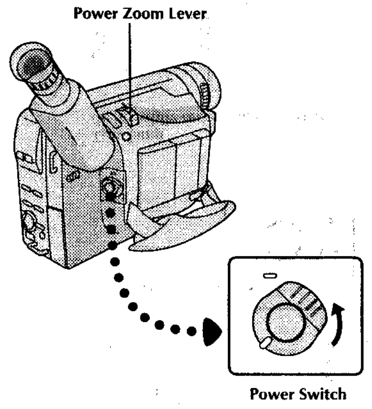
When you do not want the indications to appear, press **DISPLAY** for longer than approximately 1 second. Certain indications disappear.
Press again for longer than approx. 1 second to make the indications reappear.

NOTE:

*Even if **DISPLAY** is pressed, the tape remaining time appears blinking when the tape is about to reach its end, and the battery pack remaining power indicator also appears blinking when the power is almost gone.*







FEATURE: Zooming

PURPOSE:

To produce the zoom in/out effect, or an instantaneous change in image magnification.
Digital circuitry extends the maximum magnification offered by optical zoom. This system is called Digital Zoom.

OPERATION:

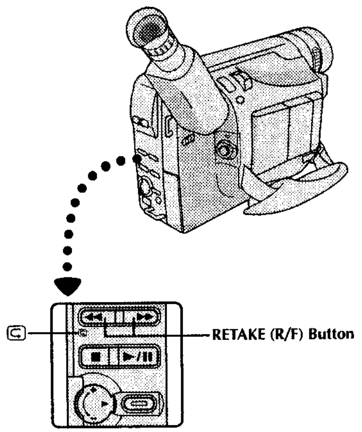
Zoom In
Push the Power Zoom Lever towards "**T**".

Zoom Out
Push the Power Zoom Lever towards "**W**".

- ■ The quicker you push the Power Zoom Lever, the quicker the zoom action.

NOTES:

- *Focusing may become unstable during Zooming. In this case, set the zoom while in Record–Standby, lock the focus by using the manual focus (☞ pg. 33), then zoom in or out in Record mode.*
- *The zoom level indicator (■) moves during zoom. Once the zoom level indicator reaches the top of the zoom indicator bar, all magnification from that point is through digital processing.*
- *When using Digital Zoom, the image quality of the image may suffer. To deactivate Digital Zoom, set "D.ZOOM" to "OFF" in the Menu Screen (☞ pg. 29).*



FEATURE: Quick Review

PURPOSE:

To check the end of the last recording.

OPERATION:

1) Press "⊂" and release quickly during the Record–Standby mode.

- ■ Tape is rewound for about 2 seconds and played back automatically, then pauses in Record–Standby mode for the next shot.

NOTE:

Distortion may occur at the start of playback. This is normal.

FEATURE: Retake

PURPOSE:

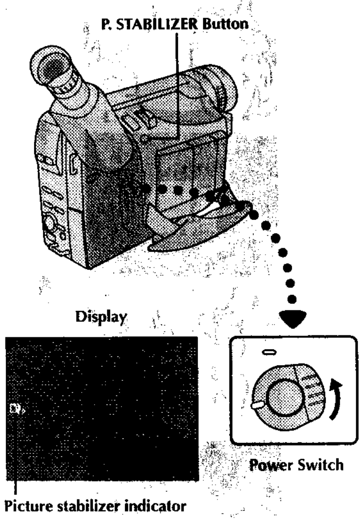
To re-record certain segments.

OPERATION:

1) Make sure the camcorder is in the Record–Standby mode.
2) Press either **RETAKE** to reach the start point for new recording. Pressing "F" forwards the tape and pressing "R" reverses it.
3) Press the Recording Start/Stop Button to start recording.

NOTE:

Noise bars appear and pictures may become monochrome or darken during Retake. This is normal.



FEATURE: Picture Stabilizer

PURPOSE:

To compensate for unstable images caused by camera-shake, particularly at high magnification.

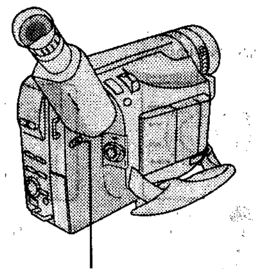
OPERATION:

1) Press **P. STABILIZER**. "◫" appears.

- To switch off the Picture Stabilizer, press **P. STABILIZER**. The indicator disappears.

NOTES:

- *Accurate stabilization may not be possible if hand shake is excessive, or under the following conditions:*
  - *When shooting subjects with vertical or horizontal stripes.*
  - *When shooting dark or dim subjects.*
  - *When shooting subjects with excessive backlighting.*
  - *When shooting scenes with movement in various directions.*
  - *When shooting scenes with low-contrast backgrounds.*
- *Switch off the Picture Stabilizer when recording with the camcorder on a tripod.*
- *The "◫" indicator appears blinking if the Stabilizer cannot be used.*



FEATURE: Video Light

PURPOSE:

To brighten the scene when natural lighting is too dim.

OPERATION:

1) Set the **LIGHT OFF/AUTO/ON** Switch as required:

OFF : Turns off the light.
AUTO : Automatically turns on the light when the camcorder senses insufficient lighting on the subject.
ON : Always keeps the light on as long as the camcorder is turned on.

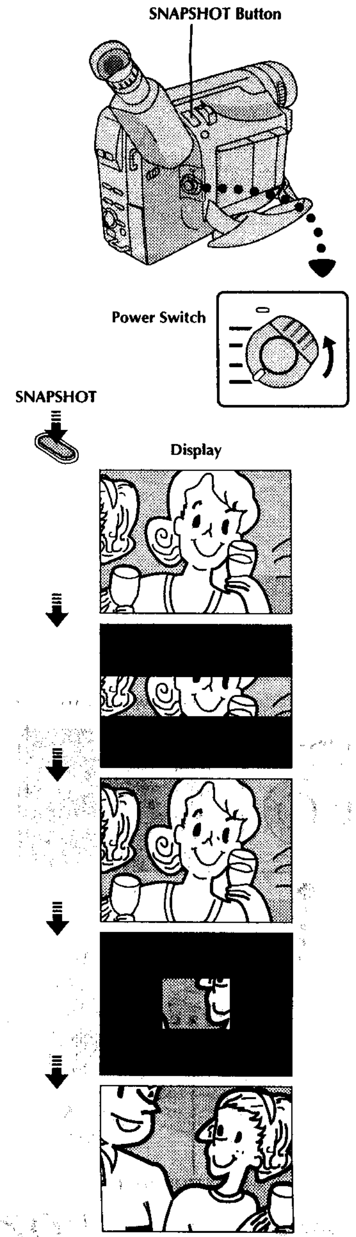
- The video light can only be used with the camcorder's power on.
- It is recommended to set the white balance (☞ pg. 34) to ☀ when you use the video light.
- When not using the video light, turn it off to save battery power.

NOTES:

- *Even if the battery indicator (▭) does not blink if the battery pack's charge is low, the camcorder may turn off automatically when you turn on the video light, or when you start recording with the video light turned on.*
- *When the **LIGHT OFF/AUTO/ON** Switch is set to "AUTO":*
  - *Depending on the lighting conditions, the video light may keep turning on and off. In this case, manually switch the light on or off using the **LIGHT OFF/AUTO/ON** switch.*
  - *While the "Sports" or "High Speed Shutter" mode (☞ pg. 25) is engaged, the light is likely to stay on.*
  - *While the "Twilight" mode (☞ pg. 25) is engaged, the light will not activate.*

DANGER

- The video light can become extremely hot. Do not touch it either while in operation or soon after turning it off, otherwise serious injury may result.
- Do not place the camcorder into the carrying case immediately after using the video light, since it remains extremely hot for some time.
- When operating, keep a distance of about 30 cm. (1 ft.) between the video light and people or objects.
- Do not use near flammable or explosive materials.
- It is recommended that you consult your nearest JVC dealer for replacing the video light.



Snapshot

Use your camcorder like a regular camera and take a snapshot, or several of them in succession.

1 SELECT OPERATION MODE

Set the Power Switch to "AUTO" or "PRO.".

2 TAKE SNAPSHOT

Press **SNAPSHOT**.

If you press during Record-Standby . . .

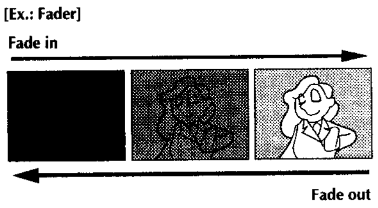
.... a still image will be recorded for approx. 6 seconds, then the camcorder re-enters the Record-Standby mode.

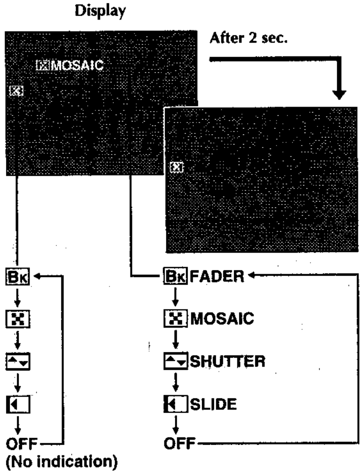
If you press during Recording . . .

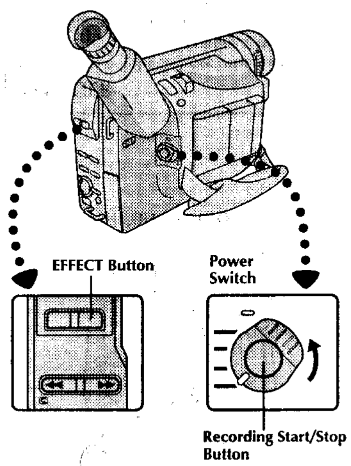
.... a still image will be recorded for approx. 6 seconds, then the normal recording resumes.

NOTE:

*After **SNAPSHOT** is pressed, there is a momentary camera shutter-type blackout together with the sound effect of a shutter closing, which is recorded together with the image.*







Fade/Wipe

These effects let you make pro-style scene transitions. Fade- or wipe-in works at recording start, and fade- or wipe-out works at recording end or when you enter Record–Standby mode.

1 SELECT OPERATION MODE

Set the Power Switch to "PRO.".

2 ENGAGE FADE- OR WIPE-STANDBY MODE

Press **EFFECT** to cycle through the modes as shown at left. Once the desired mode appears, it is selected and reserved.

- The selected mode's name and its indication are displayed for approx. 2 seconds. Then the name disappears, and only the indication remains.

3 START OR END RECORDING

Press the Recording Start/Stop Button to activate fade-in/out or wipe-in/out.

4 TO CANCEL FADE- OR WIPE-STANDBY MODE

Press **EFFECT** repeatedly until "OFF" appears.

- "OFF" is displayed for approx. 2 seconds and the fade/wipe standby mode is canceled.

Bk FADER

Fades in/out to a black screen.

⊠ MOSAIC (Fader)

Gradually turns/returns the picture into/from a mosaic pattern.

⬓ SHUTTER (Wipe)

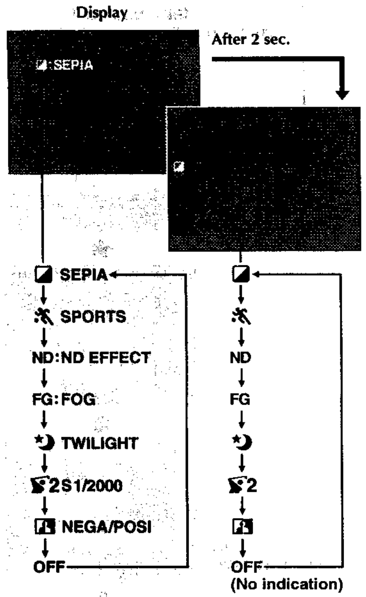
A black screen moves in from the top and bottom, closing over the image like a shutter, or a new image pushes open the black screen vertically from the center.

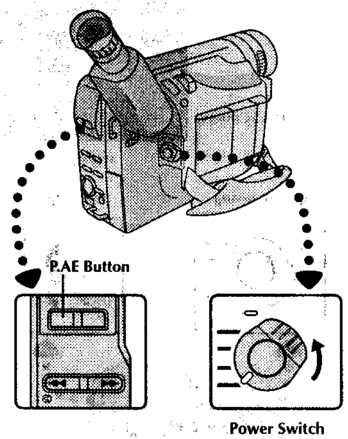
◧ SLIDE (Wipe)

A black screen moves in from the left to gradually cover the image, or a new image moves in from right to left.

NOTES:

- *Pressing and holding the Recording Start/Stop Button allows you to vary the length for the image during fade in/out or wipe in/out.*
- *The screen becomes slightly reddish when the Fade/Wipe is used with Sepia (☞ pg. 25).*
- *With the Electronic fog filter mode (☞ pg. 25) engaged, the image fades in/out to a white screen.*





Program AE With Special Effects

All you have to do to access any of the variety of shooting effects is press **P.AE**.

1 SELECT OPERATION MODE

Set the Power Switch to "PRO.".

2 SELECT MODE

Press **P.AE** to cycle through the modes as shown on the left.

- The selected mode's name and its indication are displayed for approx. 2 seconds. Then the name disappears, and only the indication remains. The mode is activated.

NOTES:

- *Only one mode can be engaged at a time.*
- *The screen becomes slightly reddish when the Fade/ Wipe (☞ pg. 23) is used in the Sepia mode.*
- *The screen becomes slightly dark in the High Speed Shutter mode. Use in well-lit situations.*
- *In the "High Speed Shutter" or "Sports" modes, picture color may be adversely affected if the subject is lit by alternating discharge-type light sources such as flourescent or mercury-vapor lights.*

Display	Mode
SEPIA	Sepia

Sepia
The scene being shot is recorded in sepia-tinted (reddish-brown) monochrome, giving the effect of an older movie. Use together with Wide (☞ pg. 29) for the authentic look of a classic Hollywood movie.

Display	Mode
SPORTS	Sports

Sports
High shutter speed clearly captures fast-moving action.

Display	Mode
ND:ND EFFECT	ND Effect

ND Effect
A black mist darkens the picture, as when an ND filter is used. Helps to counter the effects of glare on the subject.

Display	Mode
FG:FOG	Electronic Fog Filter

Electronic Fog Filter
Makes the picture look misty white, as when an external fog filter is attached to the lens. Softens the image and gives it a "fantasy" look.

Display	Mode
TWILIGHT	Twilight

Twilight
Dusk, twilight scenery, fireworks, etc., look more natural and dramatic. The following happens when Twilight mode is selected:

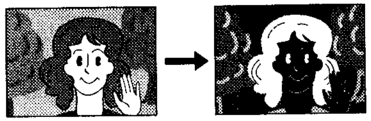
- Auto gain control is turned off.
- White Balance is set to "☀" (FINE day mode), but can also be manually changed to another mode (☞ pg. 34).
- Auto Focus becomes available only in the range of 10 m (33 ft.) to infinity. To focus when the subject-to-camera distance is less than 10 m (33 ft.), use manual focusing (☞ pg. 33).

Display	Mode
2 S 1/2000	1/2000 sec. High Speed Shutter

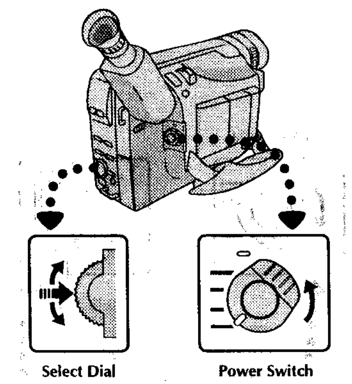
High-Speed Shutter (1/2000s.)
Captures faster action than Sports mode.

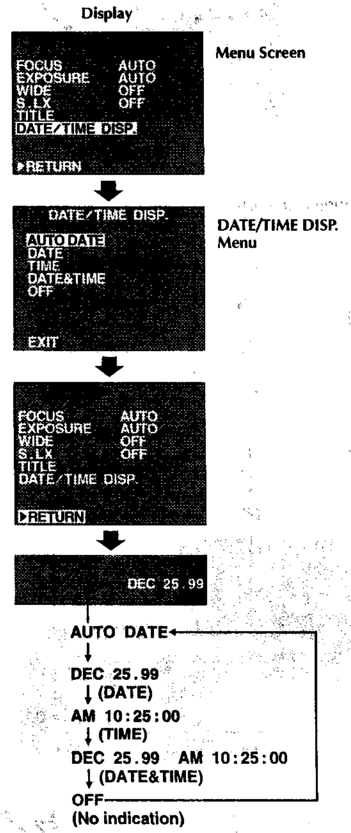
Display	Mode
NEGA POSI	Nega/Posi

Nega/Posi (Negative/Positive)
The colors of a picture are reversed.



NEGA POSI mode


Select Dial
Power Switch


Display
FOCUS AUTO
EXPOSURE AUTO
WIDE OFF
S.LX OFF
TITLE
DATE/TIME DISP.
▶RETURN
Menu Screen
DATE/TIME DISP.
AUTO DATE
DATE
TIME
DATE&TIME
OFF
EXIT
DATE/TIME DISP. Menu
FOCUS AUTO
EXPOSURE AUTO
WIDE OFF
S.LX OFF
TITLE
DATE/TIME DISP.
▶RETURN
DEC 25.99
AUTO DATE
DEC 25.99
(DATE)
AM 10:25:00
(TIME)
DEC 25.99 AM 10:25:00
(DATE&TIME)
OFF
(No indication)

Date/Time Insert

This feature allows you to display the date and time in the viewfinder or on a connected color monitor, as well as to record them manually or automatically.

1 SELECT OPERATION MODE

Set the Power Switch to "PRO.".

2 ACCESS MENU SCREEN

Press the Select Dial to display the Menu Screen.

3 ACCESS "DATE/TIME DISP." MENU

Move the highlight bar to "DATE/TIME DISP." by rotating the Select Dial while in Record-Standby. Then press it to display the DATE/TIME DISP. Menu.

4 SELECT THE DESIRED MODE

Move the highlight bar to the desired mode by rotating the Select Dial, then press it. The desired mode is activated.

- You should have already performed the Date/Time Setting procedure (☞ pg. 11). If you haven't, do so first.

5 CLOSE MENU SCREEN

The Menu Screen reappears with the highlight bar on "RETURN". Then press the Select Dial to close the Menu Screen.

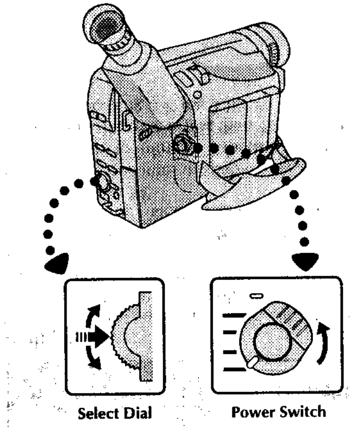
NOTES:

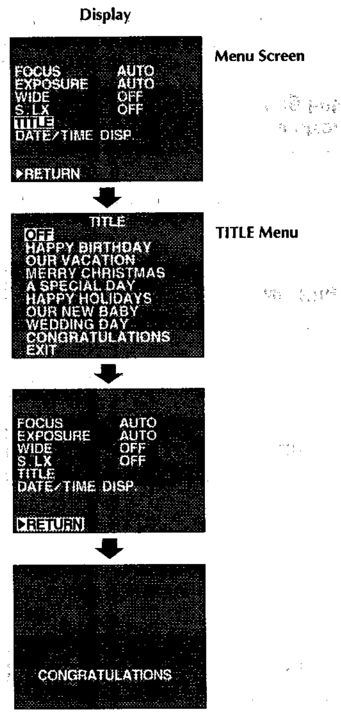
DISPLAY

- *The selected display can be recorded.*
- *If you do not want to record the display, select the OFF mode before shooting.*

AUTO DATE

- *Your camcorder automatically records the date for about 5 seconds after recording is initiated in the following situations:*
  - *After changing the date.*
  - *After loading a cassette.*
  - *After Auto Date Record mode is selected by rotating the Select Dial.*
- *In this mode, the date is replaced after 5 seconds with "AUTO DATE" but this is not recorded.*


Select Dial
Power Switch


Display
FOCUS AUTO
EXPOSURE AUTO
WIDE OFF
S.LX OFF
TITLE
DATE/TIME DISP.
▶RETURN
Menu Screen
TITLE
OFF
HAPPY BIRTHDAY
OUR VACATION
MERRY CHRISTMAS
A SPECIAL DAY
HAPPY HOLIDAYS
OUR NEW BABY
WEDDING DAY
CONGRATULATIONS
EXIT
TITLE Menu
FOCUS AUTO
EXPOSURE AUTO
WIDE OFF
S.LX OFF
TITLE
DATE/TIME DISP.
▶RETURN
CONGRATULATIONS

Instant Titles

The camcorder has eight preset titles in memory. You can superimpose one of them above a previously stored title as shown in the illustration to the left.

Instant Titles can be displayed not only in English but also in French, Spanish and Portuguese. Change the setting in TITLE LANG. in the Menu Screen. (☞ pg. 28, 30).

1 SELECT OPERATION MODE

Set the Power Switch to "PRO.".

2 ACCESS MENU SCREEN

Press the Select Dial to display the Menu Screen.

3 ACCESS "TITLE" MENU

Move the highlight bar to "TITLE" by rotating the Select Dial while in Record-Standby. Then press it to display the TITLE Menu.

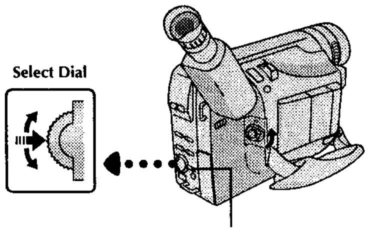
4 SELECT THE DESIRED MODE

Move the highlight bar to the desired mode by rotating the Select Dial, then press it. The desired mode is activated.

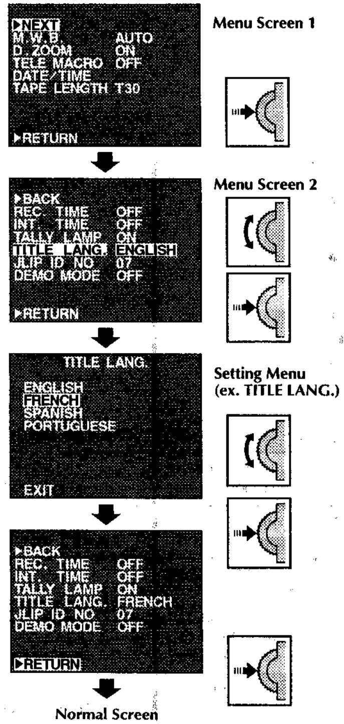
- If you wish to make the title indication disappear, select "OFF".

5 CLOSE MENU SCREEN

The Menu Screen reappears with the highlight bar on "RETURN". Then press the Select Dial to close the Menu Screen.



Display
(ex. Menu Screen available using the MENU Button)



▶NEXT
M.W.B. AUTO
D. ZOOM ON
TELE MACRO OFF
DATE/TIME
TAPE LENGTH T30
▶RETURN

▶BACK
REC. TIME OFF
INT. TIME OFF
TALLY LAMP ON
TITLE LANG. ENGLISH
JLIP ID NO 07
DEMO MODE OFF
▶RETURN

TITLE LANG.
ENGLISH
FRENCH
SPANISH
PORTUGUESE
EXIT

▶BACK
REC. TIME OFF
INT. TIME OFF
TALLY LAMP ON
TITLE LANG. FRENCH
JLIP ID NO 07
DEMO MODE OFF
▶RETURN

NOTE:
No menu functions except "FOCUS" and "EXPOSURE" are available while in the Record mode.

Using Menu For Detailed Adjustment

This camcorder is equipped with an easy-to-use, on-screen menu system that simplifies many of the more detailed camcorder settings.

1 SELECT OPERATION MODE

Turn the Power Switch to "PRO.".

2 ACCESS MENU SCREEN

Menu access depends on the function you select.

If you select the functions from the "Menu Screen Available Using The Select Dial" described on pg. 29...
.... press the Select Dial. The Menu Screen appears.

If you select the functions from the "Menu Screen Available Using The MENU Button" described on pg. 29 and 30...
.... press **MENU**. The Menu Screen appears.

3 SELECT FUNCTION

Rotate the Select Dial to place the highlight bar on the desired function.

- To go from Menu Screen 1 to Menu Screen 2, rotate the Select Dial to "NEXT" and press it. To go back to Menu Screen 1 from Menu Screen 2, rotate the Select Dial to "BACK", and press it.
- If the setting you want cannot be found in the Menu Screen, place the highlight bar on "RETURN", then go to step **6**.

4 MAKE SETTING

Press the Select Dial. The setting procedure depends on the function you select.

If you select "FOCUS", "EXPOSURE", "TITLE", "DATE/TIME DISP." or "DATE/ TIME"...
.... see respective pages (FOCUS: ☞ pg. 32, 33, EXPOSURE: ☞ pg. 31, TITLE: ☞ pg. 27, DATE/TIME DISP.: ☞ pg. 26, DATE/TIME: ☞ pg. 11).

If you select "WIDE", "D.ZOOM", "TELE MACRO" or "DEMO MODE"...
.... the selected function's parameter starts blinking. Rotate the Select Dial until the desired parameter appears. Go to step **5**.

If you select "JLIP ID NO."...
.... press the Select Dial so that the number blinks, then rotate it until the desired number appears, and press it. Then rotate the Select Dial to move the highlight bar to "RETURN".

If you select any other functions...
.... rotate the Select Dial to move the highlight bar to the desired setting.
- If you decide you want to return to the previous setting, rotate the Select Dial to move the highlight bar to "EXIT".

5 END SETTING

Press the Select Dial. The Menu Screen reappears with the highlight bar on "RETURN".

6 CLOSE MENU SCREEN

Press the Select Dial. The normal screen reappears.

MENU SCREEN EXPLANATIONS

Menu Screen Available Using The Select Dial

FOCUS	**AUTO**	Adjusts focus automatically.
	MANU	Allows you to adjust focus manually (☞ pg. 32, 33).
EXPOSURE	**AUTO**	Adjusts exposure automatically.
	MANU	Allows you to adjust exposure manually (☞ pg. 31).
WIDE	**OFF**	Does not display black bars.
	ON	Allows you to record black bars at the top and bottom of the screen to produce a cinema-like "wide-screen" effect. If a snapshot (☞ pg. 22) is taken while the camcorder is in the WIDE mode, the snapshot image is recorded using NORMAL mode without the black bars at the top and bottom of the screen.
S.LX	**MAX**	To record a subject in a darkly lit environment, when it is more convenient to shoot the subject with a brighter image even if the picture becomes slightly coarse.
	NORMAL	To record a subject in a dimly lit environment, when it is more convenient to shoot with a less coarse picture although the subject becomes slightly dark. This setting is suitable for measuring sensitivity conforming to EIA-639 (EIA* Standard for Low Light Sensitivity Measurement). *EIA : Electronic Industries Alliance
	OFF	Allows you to shoot dark scenes with no picture brightness adjustment.
TITLE		Allows you to superimpose one of eight preset titles (☞ pg. 27).
DATE/TIME DISP.		Makes the date/time settings appear in the camcorder or on a connected monitor (☞ pg. 26).

Menu Screen Available Using The MENU Button

This Menu Screen cannot be accessed while recording.

M.W.B.	**AUTO**	This camcorder's Automatic Color Temperature system senses the color temperature of the ambient lighting for automatic white balance adjustment. However, precise color adjustment is not possible under the following conditions: • When an object is in various shades of the same color. • When a predominantly red or brown object is being shot outdoors. In these cases, use the camcorder's built-in preset filters for white balance adjustment (☞ pg. 34, 35).
	☀ : FINE	
	⛅ : CLOUD	
	✺ : HALOGEN	
	MWB	
D. ZOOM	**ON**	Allows you to use the Digital Zoom. By digitally processing and magnifying images, zooming is possible from 16 times (the optical zoom limit), to a maximum of 100 times digital magnification.
	OFF	Digital Zoom is not available. Only optical zoom (maximum 16x magnification) can function. When set to "OFF" during Digital Zoom, zoom magnification changes to 16x.
TELE MACRO	**OFF**	Usually the distance to a subject where the lens is in focus depends on the zoom magnification. Unless there is a distance of more than 1m (3.3 ft.) to the subject, the lens is out of focus at the maximum telephoto setting. When set to "ON", you can shoot a subject as large as possible at a distance of approx. 60 cm (2 ft.). • Depending on the zoom position, the lens may go out of focus.
	ON	

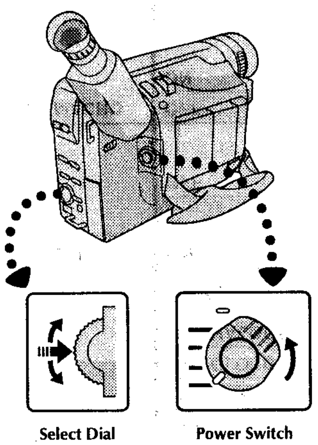
▨ **: Factory-preset**

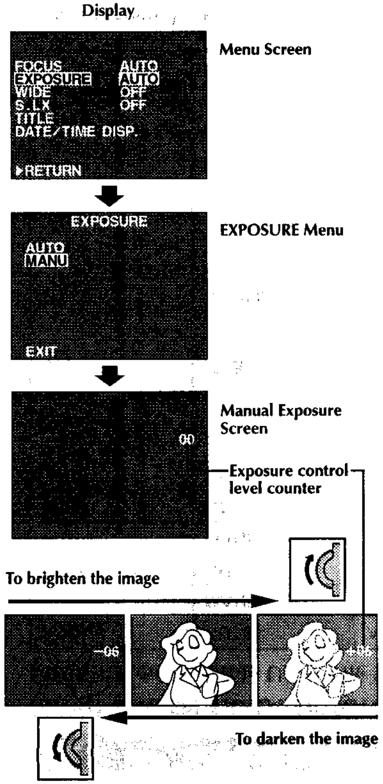
CONTINUED ON NEXT PAGE

Menu Screen Available Using The MENU Button (cont.)

DATE/TIME	Allows you to set the current date and time (☞ pg. 11).	
TAPE LENGTH	Allows you to set the tape length depending on the tape used (☞ pg. 12).	
REC TIME	This feature allows you to set the parameters for Animation and Time-Lapse recording (☞ pg. 37).	
INT. TIME	This feature allows you to set the parameters for Self-Timer (☞ pg. 36) and Time-Lapse recording (☞ pg. 36, 37).	
TALLY LAMP	**OFF**	The tally lamp remains off at all times.
	ON	The tally lamp comes on to signal the start of recording.
TITLE LANG.	Allows you to select the language (ENGLISH, FRENCH, SPANISH or PORTUGUESE) of Instant Titles (☞ pg. 27).	
JLIP ID NO.	This number is necessary when connecting the camcorder to a device such as a computer using the J terminal (JLIP). The numbers range from 01 to 99. Factory setting is 07.	
DEMO MODE	**OFF**	Automatic demonstration will not take place.
	ON	Demonstrates certain functions such as Fade/Wipe, etc. When "DEMO MODE" is set to "ON" and the Menu Screen is closed, the demonstration starts. **NOTES:** ● *When a tape whose Erase Protection tab is in the position that allows recording is loaded in the camcorder, demonstration is not available.* ● *By turning off the camcorder or inserting a tape whose Erase Protection tab is in the position that allows recording into it, "DEMO MODE" is set to "OFF" automatically.* ● *During the demonstration, all functions except zoom are disabled.*

▨ : **Factory-preset**





Exposure Control

This feature automatically adjusts the iris for the best available picture quality, but you can override and make the adjustment manually.

1 SELECT OPERATION MODE
Set the Power Switch to "PRO.".

2 ACCESS MENU SCREEN
Press the Select Dial to display the Menu Screen.

3 ACCESS "EXPOSURE" MENU
Rotate the Select Dial to move the highlight bar to "EXPOSURE" and press it.

4 ACCESS MANUAL EXPOSURE
Rotate the Select Dial to move the highlight bar to "MANU", then press it. "00" (exposure control level counter) appears.

5 ADJUST EXPOSURE
To brighten the image . . .

.... rotate the Select Dial upward. The exposure control level counter increases (maximum +06).
Go to step **6**.

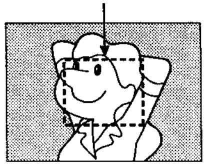
To darken the image . . .

.... rotate the Select Dial downward. The exposure control level counter decreases (maximum –06).
Go to step **6**.

6 END ADJUSTMENT OF EXPOSURE
Press the Select Dial. The Menu Screen reappears with the highlight bar on "RETURN".

7 CLOSE MENU SCREEN
Press the Select Dial. The Menu Screen disappears and the exposure control level counter reappears to indicate the exposure is adjusted.

NOTES:
- *To return to the factory setting, select "AUTO" in step **4**.*
- *To re-adjust exposure, repeat the procedure from step **2**.*



Focusing

AUTO FOCUS

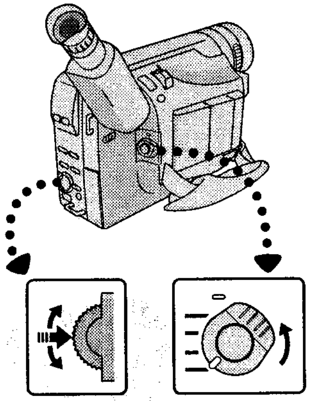
The camcorder's Full Range AF system offers continuous shooting ability from close-up to infinity. However, correct focus may not be obtainable in the situations listed below (in these cases use manual focusing):

- When two subjects overlap in the same scene.
- When illumination is low.*
- When the subject has no contrast (difference in brightness and darkness), such as a flat, one-color wall, or a clear, blue sky.*
- When a dark object is barely visible in the viewfinder.*
- When the scene contains minute patterns or identical patterns that are regularly repeated.
- When the scene is affected by sunbeams or light reflecting off the surface of a body of water.
- When shooting a scene with a high-contrast background.

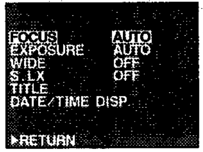
* The low-contrast warning "▲♟" appears.

NOTES:

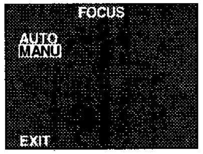
- *If the lens is smeared or blurred, accurate focusing is not possible. Keep the lens clean, wiping with a piece of soft cloth if it gets dirty. When condensation occurs, wipe with a soft cloth or wait for it to dry naturally.*
- *When shooting a subject close to the lens, zoom out first (☞ pg. 18). If zoomed in in the auto focus mode, the camcorder could automatically zoom out depending on the distance between the camcorder and the subject. When Tele Macro (☞ pg. 29) is activated, the camcorder will not zoom out automatically.*



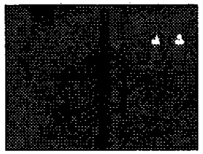
Display

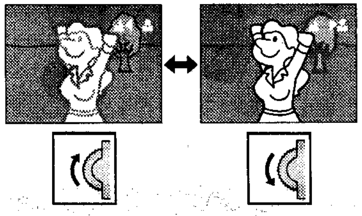

Menu Screen

FOCUS AUTO
EXPOSURE AUTO
WIDE OFF
S.LX OFF
TITLE
DATE/TIME DISP
▶RETURN


FOCUS Menu

FOCUS
AUTO
MANU
EXIT


Manual Focus Screen



MANUAL FOCUS

NOTE:

You should already have made the necessary viewfinder adjustments (☞ pg. 14). If you haven't, do so before continuing.

1 SELECT OPERATION MODE
Set the Power Switch to "PRO.".

2 ACCESS MENU SCREEN
Press the Select Dial to display the Menu Screen.

3 ACCESS "FOCUS" MENU
Press the Select Dial.

4 ACCESS MANUAL FOCUS
Rotate the Select Dial to move the highlight bar to "MANU", then press it. "▲" and "♟" appear. The focus is locked at this point.

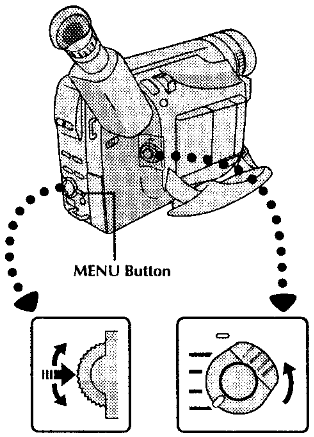
5 ADJUST FOCUS
To farther subject . . .
.... rotate the Select Dial upward. "◀" appears and blinks.
Go to step **6**.
To nearer subject . . .
.... rotate the Select Dial downward. "▶" appears and blinks.
Go to step **6**.

6 END ADJUSTMENT OF FOCUS
Press the Select Dial. The Menu Screen reappears with the highlight bar on "RETURN".

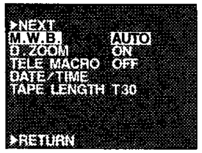
7 CLOSE MENU SCREEN
Press the Select Dial. The Menu Screen disppears and "▲♟" reappears to indicate the focus is locked.

NOTES:

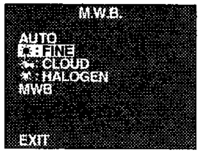
- *To return to Auto Focus, select "AUTO" in step **4**.*
- *To re-adjust Manual Focus, repeat the procedure from step **2**.*
- *Be sure to focus the lens in the maximum telephoto position when you use the Manual Focus mode. If you focus in on a certain subject in the wide-angle position, sharply focused images cannot be obtained when zoomed in because the depth-of-field is reduced at longer focal lengths.*
- *When the focus level cannot be adjusted any farther or closer, "▲" or "♟" will blink.*



Display



Menu Screen



M.W.B. Menu

White Balance Adjustment

A term that refers to the correctness of color reproduction under various lighting. If the white balance is correct, all other colors will be accurately reproduced.
The white balance is usually adjusted automatically. However, the more advanced camcorder operator would prefer to control this function manually and achieve a more professional color/tint reproduction.

1 SELECT OPERATION MODE

Set the Power Switch to "PRO.".

2 ACCESS MENU SCREEN

Press **MENU**. The Menu Screen appears.

3 ACCESS WHITE BALANCE ADJUSTMENT

Move the highlight bar to "M.W.B." by rotating the Select Dial, then press it. The Menu Screen disappears and the M.W.B. Menu appears.

4 SET FUNCTION PARAMETERS

Move the highlight bar to the required white balance by rotating the Select Dial, then press it. Selection is complete.

"AUTO"
The white balance is adjusted automatically. This is the factory preset position.

"☀ : FINE"
When shooting outdoors on a sunny day.

"☁ : CLOUD"
When shooting outdoors on a cloudy day.

"✳ : HALOGEN"
When using a video light or other similar type of lighting.

"MWB"
When shooting with the white balance already having been set on the subject (☞ pg. 35).

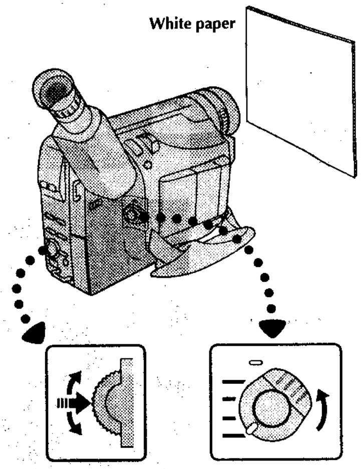
5 CLOSE MENU SCREEN

The Menu Screen reappears with the highlight bar on "RETURN". Press the Select Dial again to close the Menu Screen.

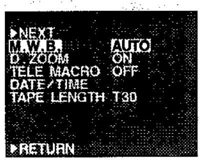
To Return To Automatic White Balance . . .
.... select "AUTO" in step **3**. Or set the Power Switch to "AUTO".

NOTE:

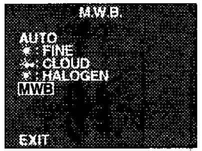
White balance cannot be used when Sepia (☞ pg. 25) is activated.



Display



Menu Screen



M.W.B. Menu

Manual White Balance Operation

If the camera is operating in PRO. mode, perform a Manual White Balance when shooting under various types of lighting.

1 SELECT OPERATION MODE

Follow steps **1** through **4** of the white balance adjustment (☞ pg. 34), and select "MWB".

2 SET MANUAL WHITE BALANCE

Hold a sheet of plain white paper in front of the subject. Adjust zoom or position yourself so that the white paper fills the screen.

3 ENTER SETTING

Press the Select Dial until "MWB" begins blinking.

- When the setting is completed, "MWB" stops blinking, and the Menu Screen reappears with the highlight bar on "RETURN".

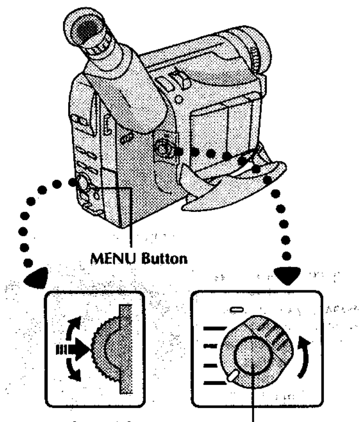
4 CLOSE MENU SCREEN

Press the Select Dial again to close the Menu Screen.

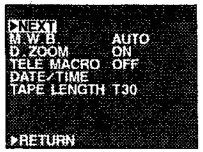
To Change The Tint For Recording . . .
.... in step **2**, substitute colored paper for white. The white balance is adjusted based on the color, changing the tint. Red paper — deeper green; blue paper — orange; yellow paper — deeper purple.

NOTES:

- *In step 2, it may be difficult to focus on the white paper in some circumstances. In such a case, adjust focus manually (☞ pg. 33).*
- *A subject can be shot under various types of lighting conditions indoors (natural, flourescent, candlelight, etc.). Because the color temperature is different depending on the light source, the tint of the subject will differ depending on the white balance settings. Use this function for a more natural result.*
- *Once you adjust white balance during Manual White Balance operation, the setting is retained even if the power is turned off or the battery removed.*

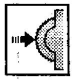


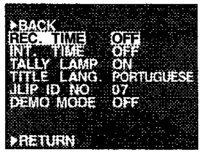
Display



▶NEXT
M.W.B. AUTO
D.ZOOM ON
TELE MACRO OFF
DATE/TIME
TAPE LENGTH T30
▶RETURN

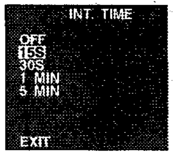
Menu Screen 1



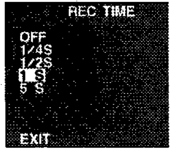


▶BACK
REC. TIME OFF
INT. TIME OFF
TALLY LAMP ON
TITLE LANG. PORTUGUESE
JLIP ID NO. 07
DEMO MODE OFF
▶RETURN

Menu Screen 2



INT. TIME Menu



REC TIME Menu

INT. TIME indicator
REC TIME indicator

INT. TIME and REC TIME indications on the normal screen

Self-Timer

You can set the delay between pressing the Recording Start/Stop button and the actual start of recording. If you secure the camcorder, you (or whoever is operating the camcorder) can enter the scene before recording starts.

NOTE:

Make sure the Power Switch is set to "PRO." and the camcorder is in the Record-Standby mode before performing the following steps.

1 ACCESS MENU SCREEN
Press MENU.

2 ACCESS "INT. TIME" MENU
Rotate the Select Dial to move the highlight bar to "NEXT" in Menu Screen 1 and press it to display Menu Screen 2. Then, move the highlight bar to "INT. TIME" and press it.

3 SET INTERVAL TIME
Rotate the Select Dial to move the highlight bar to the desired time, then press it. The Menu Screen reappears with the highlight bar on "RETURN".

4 CLOSE MENU SCREEN
Press the Select Dial.

5 START DELAYED RECORDING
Press the Recording Start/Stop Button. When the selected time has elapsed, recording begins automatically.

To Cancel Self-Timer . . .

.... Before the recording begins, press the Recording Start/Stop Button to display "≡PAUSE≡", then set "INT. TIME" in the Menu Screen to "OFF".

Animation

You can give stationary scenes or objects an illusion of movement. This function allows you to shoot a series of pictures, each slightly different, of the same object for a brief period of time.

NOTE:

Before performing the following steps, make sure that:

- *The Power Switch is set to "PRO.".*
- *The camcorder is in the Record-Standby mode.*
- *The recording mode is set to "SP".*

1 ACCESS MENU SCREEN
Press MENU.

2 SET RECORDING TIME
Rotate the Select Dial to move the highlight bar to "NEXT" in Menu Screen 1 and press it to display Menu Screen 2. Then, move the highlight bar to "REC TIME" and press it. The REC TIME Menu appears. Rotate the Select Dial to move the highlight bar to the desired time, then press it. The Menu Screen reappears with the highlight bar on "RETURN". Press the Select Dial again to close the Menu Screen.

3 START RECORDING
Press the Recording Start/Stop Button after focusing on the subject. The recording stops automatically after the selected period of time.

4 ASSEMBLE SERIES OF PICTURES
Repeat step **3** for the desired number of pictures.

5 RELEASE ANIMATION MODE
Set "REC TIME" in the Menu screen to "OFF".

NOTES:

- *For best results, make sure the camcorder is secured when shooting in Animation or Time-Lapse mode.*
- *Fade- or wipe-in/out cannot be performed during Animation or Time-Lapse shooting.*
- *Before performing other operations following Animation or Time-Lapse recording, make sure the Animation or Time-Lapse mode is deactivated.*
- *Self-Timer, Animation and Time-Lapse are canceled when the power is shut off or when the cassette is ejected.*

Time-Lapse

You can record sequentially at preset time spans. Leaving the camcorder aimed at a specific subject, you can record subtle changes over an extended period of time.

NOTE:

Before performing the following steps, make sure that:

- *The Power Switch is set to "PRO.".*
- *The camcorder is in the Record-Standby mode.*
- *The recording mode is set to "SP".*

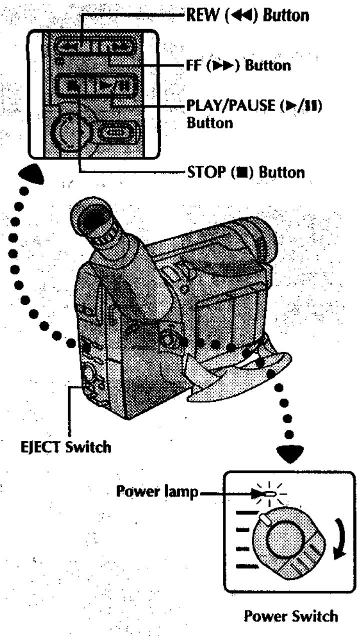
1 ACCESS MENU SCREEN
Press MENU.

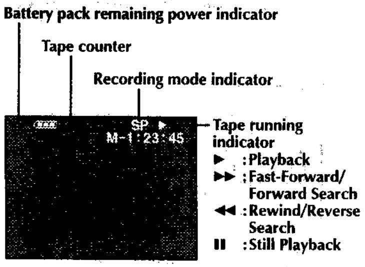
2 SET INTERVAL BETWEEN RECORDINGS
Rotate the Select Dial to move the highlight bar to "NEXT" in Menu Screen 1 and press it to display Menu Screen 2. Then, move the highlight bar to "INT. TIME" and press it. The INT. TIME Menu appears. Rotate the Select Dial to move the highlight bar to the desired time, then press it. The Menu Screen reappears.

3 SET RECORDING TIME
Rotate the Select Dial to move the highlight bar to "REC TIME", then press it. The REC TIME Menu appears. Rotate the Select Dial to move the highlight bar to the desired time, then press it. The Menu Screen reappears with the highlight bar on "RETURN". Press the Select Dial again to close the Menu Screen.

4 START TIME-LAPSE RECORDING
Press the Recording Start/Stop Button. Recording and intervals alternate automatically.

5 RELEASE TIME-LAPSE MODE
To release when "≡PAUSE≡" is displayed, set "REC TIME" and "INT. TIME" in the Menu Screen to "OFF". To release when "≡PAUSE≡" and "REC▶▶▶" are not displayed, press the Recording Start/Stop Button to display "≡PAUSE≡", then set "REC TIME" and "INT. TIME" in the Menu Screen to "OFF".


REW (◀◀) Button
FF (▶▶) Button
PLAY/PAUSE (▶/❚❚) Button
STOP (■) Button
EJECT Switch
Power lamp
Power Switch


Battery pack remaining power indicator
Tape counter
Recording mode indicator
SP ▶
M-1:23:45
Tape running indicator
▶ :Playback
▶▶ :Fast-Forward/ Forward Search
◀◀ :Rewind/Reverse Search
❚❚ :Still Playback

Viewfinder indications

1 LOAD A CASSETTE

Slide **EJECT** to open the cassette holder, then insert the cassette with the label facing out. Press **PUSH** to ensure the holder is closed and locked.

2 SELECT MODE

Set the Power Switch to "PLAY". The power lamp lights.

3 PLAY BACK

Press **PLAY/PAUSE** (▶/❚❚). The playback picture appears.

4 STOP PLAYBACK

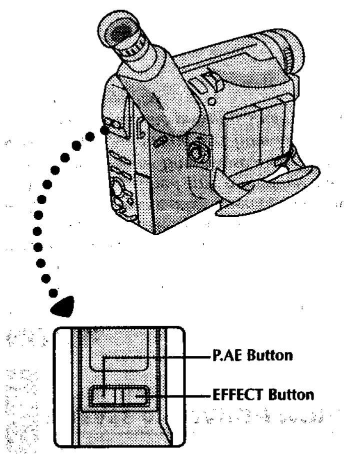
Press **STOP** (■).

Rewind or Fast-Forward the tape

Press **REW** (◀◀) to rewind, or **FF** (▶▶) to fast-forward the tape during Stop mode.

NOTES:

- *The camcorder shuts off automatically after about 5 minutes in Stop mode. To turn on again, set the Power Switch to "POWER OFF", then to "PLAY".*
- *During Stop, Fast-Forward or Rewind mode, none of the indications are displayed in the viewfinder.*
- *If a blank portion on the tape is played back, the screen may become black. This is not a malfunction.*


P.AE Button
EFFECT Button

Tracking

This function can be used to eliminate noise bars that appear on-screen during playback. Initial setting is Auto Tracking. Manual Tracking is also available.

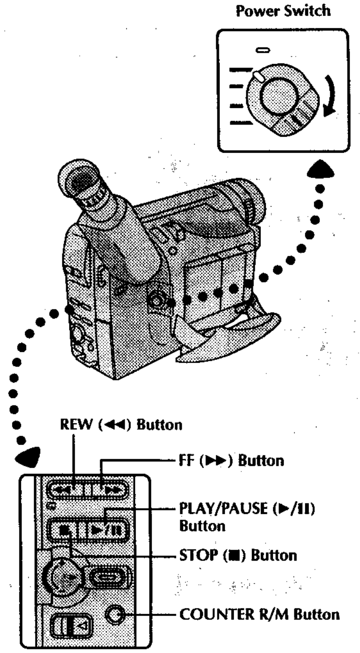
1 ACTIVATE MANUAL TRACKING

Press **P.AE** or **EFFECT** during playback. Keep pressing it until the noise bars disappear.

- To return to Auto Tracking, press **P.AE** and **EFFECT** simultaneously. "AT" blinks. When Auto Tracking finishes, the indication disappears.

NOTES:

- *When noise bars appear during playback, the camcorder enters the Auto Tracking mode and "AT" is displayed.*
- *Manual Tracking may not work with tapes recorded on other VCRs or camcorders.*



FEATURE: Still Playback

PURPOSE:

To pause during playback.

OPERATION:

1) Press **PLAY/PAUSE (▶/❚❚)** during playback.
2) To resume normal playback, press **PLAY/PAUSE (▶/❚❚)** again.

NOTE:

Noise bars appear and pictures may become monochrome during Still Playback. This is normal.

FEATURE: Shuttle Search

PURPOSE:

To allow high-speed search in either direction.

OPERATION:

1) Press **FF (▶▶)** to search forward or press **REW (◀◀)** to reverse during playback.
2) To resume normal playback, press **PLAY/PAUSE (▶/❚❚)**.

NOTES:

- *During playback, press and hold **REW (◀◀)** or **FF (▶▶)**. The search continues as long as you hold the button. Once you release it, normal playback resumes.*
- *Noise bars appear and pictures may become monochrome or darken during Shuttle Search. This is normal.*

FEATURE: Counter Memory Function

PURPOSE:

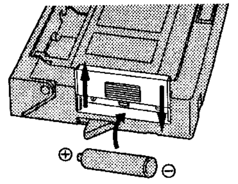
To make it easier to locate a specific tape segment.

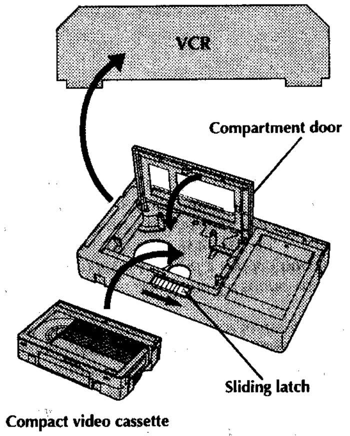
OPERATION:

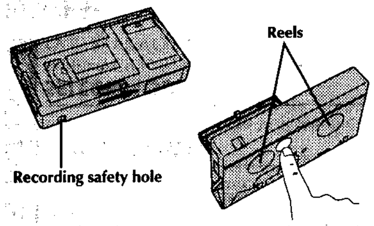
1) Press **COUNTER R/M** and hold for more than 1 second. The counter resets to "0:00:00".
2) Press **COUNTER R/M** for less than 1 second. "M" appears.
3) After recording or playback, press **STOP (■)**, then **REW (◀◀)**. The tape automatically stops at or close to 0:00:00.
4) Press **PLAY/PAUSE (▶/❚❚)** to start playback.

NOTES:

- *The counter memory functions in the Fast-Forward and Rewind modes.*
- *To disable the Counter Memory Function, press **COUNTER R/M** for less than 1 second so that "M" disappears.*







Cassette Adapter (VHS Playpak)

Use this to play back a VHS-C video cassette recorded with this camcorder on a VHS VCR. It is fully compatible with any VHS video cassette recorder. The C-P7U adapter is battery powered and automatically performs tape loading and unloading.

1 INSERT BATTERY

Slide the battery cover up to remove it, and install one "AA(R6)" size battery as shown in the illustration at left, then reattach the cover.

2 INSERT CASSETTE IN ADAPTER

Slide the latch to open the adapter compartment door, then insert the cassette and close the compartment door.

3 PLAY BACK ON CONNECTED VCR

Load the cassette adapter into the VCR and play the tape back as you would any other.

4 REMOVE CASSETTE FROM ADAPTER

Slide the latch and the compartment door opens automatically. This may take around 10 seconds. Do not attempt to force the adapter open. Then, insert your finger in the hole on the underside of the adapter as shown in the illustration at left, and push up and remove the cassette.

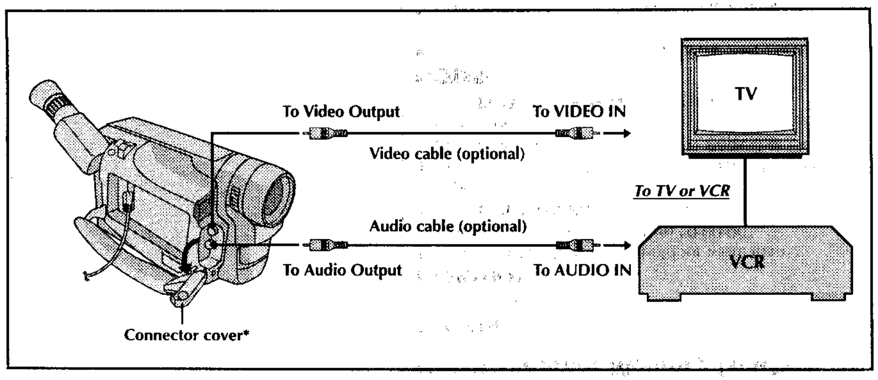
NOTES:

- *During tape loading and unloading, do not touch the reels for safety and tape protection.*
- *During special-effect playback (slow motion, still frame, etc.), the picture may vibrate or noise bars may appear on the screen.*
- *To record on a VCR using a compact cassette and the adapter, cover the adapter's recording safety hole with adhesive tape.*

These are some basic types of connections. When making connections, refer also to your VCR and TV instruction manuals.

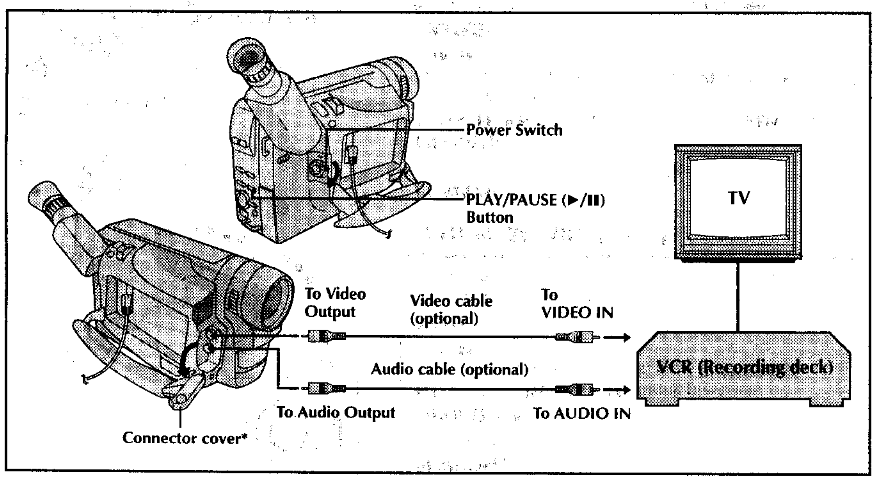
Basic Connections

Use optional Video and Audio cables.


To Video Output
To VIDEO IN
Video cable (optional)
TV
To TV or VCR
Audio cable (optional)
To Audio Output
To AUDIO IN
VCR
Connector cover*

Connection For Tape Dubbing

Use optional Video and Audio cables.


Power Switch
PLAY/PAUSE (▶/II) Button
TV
To Video Output
Video cable (optional)
To VIDEO IN
Audio cable (optional)
To Audio Output
To AUDIO IN
VCR (Recording deck)
Connector cover*

* When connecting the cables, open this cover.

Basic Connections

1 CONFIRM POWER-OFF STATUS

Make sure the camcorder's power is off.

2 CONNECT CAMCORDER TO TV OR VCR

Pull out the connector cover and open it. Connect as shown in the illustration (☞ pg. 42).

If using a VCR . . . go to step ***3****.*
If not . . . go to step ***4****.*

3 CONNECT VCR OUTPUT TO TV INPUT

Refer to your VCR's instruction manual.

4 SUPPLY POWER

Turn on the camcorder, the VCR and the TV.

5 SELECT MODE

Set the VCR to its AUX input mode, and set the TV to its VIDEO mode.

NOTES:

- ***It is recommended to use the AC Power Adapter/ Charger as the power supply instead of the battery pack (☞ pg. 9).***
- *To monitor the picture and sound from the camcorder without inserting a tape, set the camcorder's Power Switch to "CAMERA" ("AUTO" or "PRO."), then set your TV to the appropriate input mode.*
- *Make sure you adjust the TV sound volume to its minimum level to avoid a sudden burst of sound when the camcorder is turned on.*
- *If you have a TV or speakers that are not specially shielded, do not place the speakers adjacent to the TV as interference will occur in the camcorder playback picture.*

Tape Dubbing

1 CONNECT EQUIPMENT

Following the illustration on pg. 42, connect the camcorder and the VCR.

2 PREPARE FOR DUBBING

Set the camcorder's Power Switch to "PLAY", turn on the VCR's power, and insert the appropriate cassettes in the camcorder and the VCR.

3 SELECT VCR MODE

Engage the VCR's AUX and Record-Pause modes.

4 FIND EDIT-IN POINT

Engage the camcorder's Play mode to find a spot just before the edit-in point. Once it is reached, press **PLAY/PAUSE (▶/II)** on the camcorder.

5 START EDITING

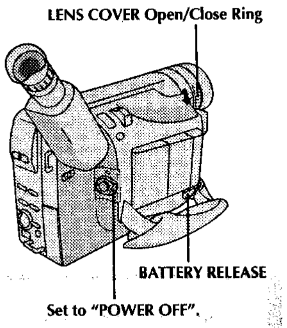
Press **PLAY/PAUSE (▶/II)** on the camcorder and engage the VCR's Record mode.

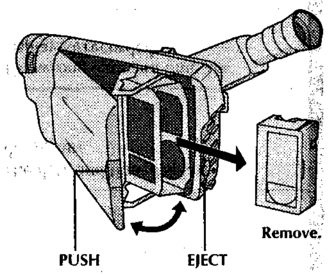
6 STOP EDITING TEMPORARILY

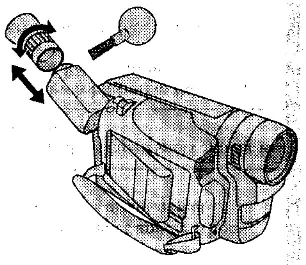
Engage the VCR's Record-Pause mode and press **PLAY/PAUSE (▶/II)** on the camcorder.

7 EDIT MORE SEGMENTS

Repeat steps **4** through **6** for additional editing, then stop the VCR and camcorder when finished.







After Use

1. Set the Power Switch to "POWER OFF" to turn off the camcorder.
2. Slide **EJECT** to open the cassette holder, then remove the cassette.
3. Close and lock the cassette holder by pressing **PUSH**.
4. Slide **BATTERY RELEASE** to remove the battery pack.
5. Turn the **LENS COVER** Open/Close Ring to close the lens cover.

Cleaning The Camcorder

1. **CLEAN EXTERIOR**
   Wipe gently with a soft cloth.
   - Put cloth in diluted mild soap and wring it well to wipe off heavy dirt, then wipe again with a dry cloth.
2. **CLEAN LENS**
   Blow it with a blower brush, then wipe it gently with lens cleaning paper.
3. **REMOVE EYEPIECE**
   Turn the eyepiece counterclockwise and pull it out.
4. **CLEAN VIEWFINDER**
   Remove dust using a blower brush.
5. **RE-ATTACH EYEPIECE**
   Re-attach the eyepiece and turn it clockwise.

NOTES:
- *Avoid using strong cleaning agents such as benzine or alcohol.*
- *Cleaning should be done only after the battery pack has been removed or other power units have been disconnected.*
- *Mold may form if the lens is left dirty.*
- *When using a cleaner or chemically treated cloth, refer to the cautions that came with it.*
- When removing the eyepiece, be sure to hold the viewfinder securely.

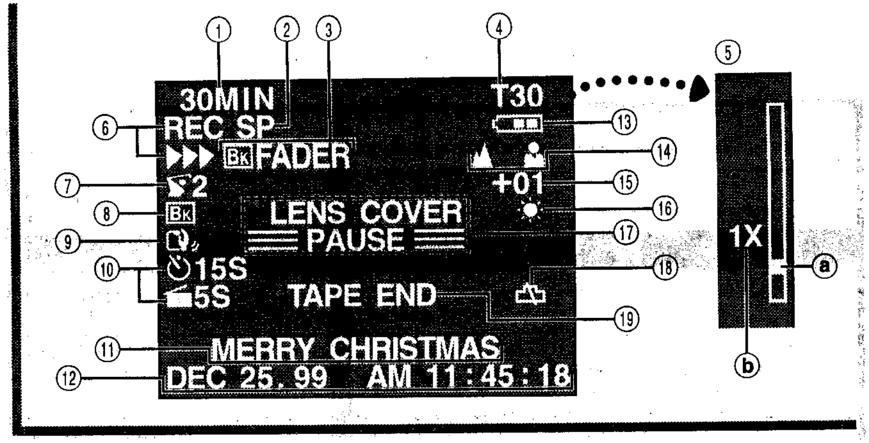
If, after following the steps in the chart below, the problem still exists, please consult your JVC dealer.

The camcorder is a microcomputer-controlled device. External noise and interference (from a TV, a radio, etc.) might prevent it from functioning properly. In such cases, first disconnect its power supply unit (battery pack, AC Power Adapter/Battery Charger, etc.) and clock battery; and then re-connect it and proceed as usual from the beginning.

SYMPTOM	POSSIBLE CAUSE(S)
POWER	
No power is supplied.	● The battery pack has not been attached correctly (☞ pg. 8). ● The battery pack is not charged (☞ pg. 8). ● The power supply has not been correctly connected (☞ pg. 9).
The power suddenly goes off and does not come back on by itself.	● The battery pack has completely discharged. ● Remove the cassette and disconnect the power source, then after a few minutes, try turning the power back on. If it still does not come on, consult your nearest JVC dealer.
RECORDING	
Recording cannot be performed.	● Make sure the Erase Protection tab is in the position that allows recording. If not, slide the tab. Some cassettes have removable tabs. If the tab has been removed, cover the hole with adhesive tape.
Recording does not start.	● The camcorder Power Switch has not been set to "CAMERA" ("AUTO" or "PRO".) (☞ pg. 16).
PLAYBACK	
The tape is running, but there is no playback picture.	● The TV has not been set to its VIDEO mode or channel. ● If A/V connection is used, the TV's VIDEO/TV Switch has not been set to VIDEO.
Playback picture is blurred or interrupted.	● The video heads are dirty or worn out. Consult your nearest JVC dealer for head cleaning or replacement.
The counter indication is blurred during Still playback.	● This is normal.
TAPE TRANSPORT	
The tape stops during fast-forward or rewind.	● The Counter Memory Function has been activated (☞ pg. 40).
Rewinding or fast-forwarding cannot be performed.	● The tape is already fully wound on one reel or the other.

SYMPTOM	POSSIBLE CAUSE(S)
OTHER	
During recording, the indications do not appear.	• Press **DISPLAY** for longer than 1 second to make the indications appear (☞ pg. 17).
The tape will not eject.	• The battery pack is running low.
Some functions are not available.	• The Power Switch is set to "AUTO". • Certain combinations of modes or effects are not possible to use.
Vertical white lines appear when shooting a very bright object.	• This sometimes occurs when the contrast between the background and the object is great. It is not a defect of the camcorder.
Bright, crystal-shaped spots appear in the viewfinder.	• Sunlight is directly entering the lens. This is not a defect of the camcorder.
The picture is blurred in the Quick Review or Retake mode.	• This is normal while recording in the EP mode. Some noise may be present while recording in the SP mode (☞ pg. 12).
An error number (i.e. E03) appears.	• Turn the camcorder's power off, then disconnect the power source. After a few minutes, try turning the power on again. If the error number still appears in the viewfinder, consult your nearest JVC dealer.
The image is out of focus.	• The diopter needs to be adjusted (☞ pg. 14). • The scene being shot is adversely affecting the operation of Auto Focus (☞ pg. 32).
The date and time displays disappear.	• If you remove the power source from the camcorder while the power is on, all settings and selections are erased. Make sure to turn the camcorder's power off before disconnecting the power source.
The wrong date and time are displayed/recorded.	• If you have not performed Date/Time Setting (☞ pg. 11), the date and time are not displayed/recorded correctly. Be sure that Date/Time setting is carried out.
Even though the lens cover is open, the Lens Cover Warning indicator blinks.	• The Lens Cover Warning indicator may blink when the camcorder is used in dark areas, regardless of the position of the lens cover.

INDEX Indications



① Cassette Warning/
Tape Remaining Time .... ☞ pg. 17
When no cassette is inserted: the cassette (📼) warning blinks.
When the Erase Protection tab is not in the position that allows recording: the cassette (📼) warning lights. Otherwise, the tape remaining time is displayed and the tape remaining time warning blinks when the tape is about to reach its end.
When the Power Switch is set to "PLAY" and a tape is loaded: the cassette (📼) mark is displayed regardless of the Erase Protection tab's position.

② Recording Mode (SP/EP) Indicator .... ☞ pg. 12

③, ⑦ Program AE Indicator .... ☞ pg. 24
Displayed at ③ for approx. 2 seconds when Program AE with special effects is switched from one mode to another by pressing **P.AE.**, then only the indicator remains at ⑦.

③, ⑧ Fade/Wipe-Standby Indicator .... ☞ pg. 23
Displayed at ③ for approx. 2 seconds when the Fade/Wipe is switched from one effect to another by pressing **EFFECT**, then only the indicator remains at ⑧.

④ Tape Length Indicator .... ☞ pg. 12

⑤ Zoom Indicator Bar .... ☞ pg. 18
ⓐ Zoom Level Indicator
ⓑ Approximate Zoom Ratio

⑥ Recording Indicator .... ☞ pg. 16

⑨ Picture Stabilizer Indicator .... ☞ pg. 20

⑩ Interval Timer/Recording Time Indicator ☞ pg. 36

⑪ Instant Title Display .... ☞ pg. 27

⑫ Date/Time Display .... ☞ pg. 26

⑬ Battery Pack Remaining Power Indicator
Changes as follows according to the battery pack's remaining power level:
"▮▮▮→▮▮→▮→▯". When the power is almost gone, the indicator "▯" blinks (battery power warning), then the unit shuts off. Replace the battery pack with a fully charged one.
Note: The symbol containing 3 darkened squares — ▮▮▮ — does not necessarily mean that the battery pack is fully charged.

⑭ Focus Indicator .... ☞ pg. 33

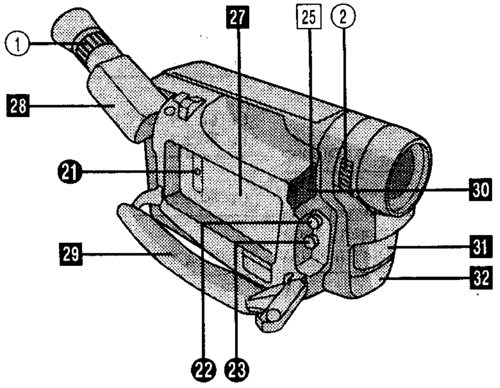
⑮ Exposure Control Level Counter .... ☞ pg. 31

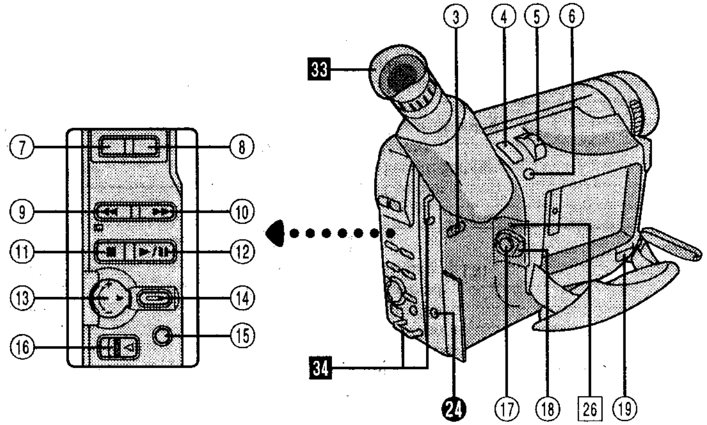
⑯ White Balance Mode Indicator .... ☞ pg. 34

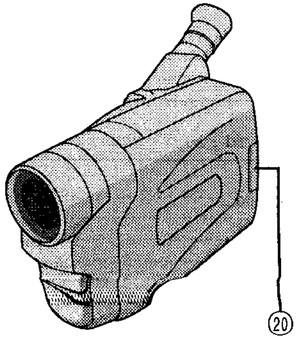
⑰ • Record–Standby Mode Indicator .... ☞ pg. 16
• Lens Cover Warning:
LENS COVER .... ☞ pg. 17

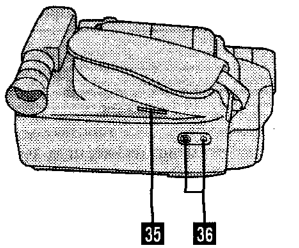
⑱ Clock Battery Warning
Blinks for approx. 10 seconds when the power is turned on. This display also blinks when the clock (lithium) battery is either not installed or has discharged. Install or replace the old battery with a new one (☞ pg. 10).

⑲ • Tape End Display: TAPE END .... ☞ pg. 17
Appears when the end of the tape is reached during playback, recording or fast-forward.
• Condensation Warning: 💧
When this indication appears, all functions except tape eject and power on/off are disabled. Turn the unit off (without removing the power source) for a few hours, and when you turn it on again the indication should disappear.
• Head Clog Warning: ⊗
Appears if dirty heads are detected during recording. In such a case, use the optional Cleaning Cassette. If, after using it, the problems still exist, consult your nearest JVC dealer.









Controls

① Diopter Adjustment Control	☞ pg. 14
② Lens Cover Open/Close Ring	☞ pg. 16
③ Video Light Switch [LIGHT OFF/AUTO/ON]	☞ pg. 21
④ Snapshot Button [SNAPSHOT]	☞ pg. 22
⑤ Power Zoom Lever [T/W]	☞ pg. 18
⑥ Picture Stabilizer Button [P.STABILIZER]	☞ pg. 20
⑦ Program AE Button [P.AE]	☞ pg. 24
⑧ Fade/Wipe Button [EFFECT]	☞ pg. 23
⑨ • Rewind Button [◀◀, REW]	☞ pg. 38
• Retake Rewind Button [RETAKE R]	☞ pg. 19
• Quick Review Button [Ⓒ R]	☞ pg. 19
⑩ • Fast-Forward Button [▶▶, FF]	☞ pg. 38
• Retake Forward Button [RETAKE F]	☞ pg. 19
⑪ Stop Button [■, STOP]	☞ pg. 38
⑫ Play/Pause Button [▶/❚❚, PLAY/PAUSE]	☞ pg. 38
⑬ Select Dial [+, –, PUSH]	☞ pg. 11, 28
⑭ MENU/DISPLAY Button	☞ pg. 17, 28
⑮ • Counter Reset/Memory Button [COUNTER R/M]	☞ pg. 40
• Recording Mode Button [SP/EP]	☞ pg. 12
⑯ EJECT Switch	☞ pg. 13
⑰ Recording Start/Stop Button	☞ pg. 16
⑱ Power Switch	☞ pg. 16, 38
⑲ Battery Release Switch [BATTERY RELEASE]	☞ pg. 8
⑳ PUSH Button	☞ pg. 13

Connectors

㉑ DC IN Jack	☞ pg. 9

The connectors ㉒ to ㉔ are located beneath the cover.

㉒ Video Output Connector	☞ pg. 42
㉓ Audio Output Connector	☞ pg. 42

㉔ J Terminal [JLIP (Joint Level Interface Protocol) Connector]
- It is used to connect the camcorder to a device such as a personal computer.
  For further details consult your nearest JVC dealer.
- JLIP-controlled editing from camcorder to VCR is not possible if the VCR is not equipped with a J terminal.

Indicators

[25] Tally Lamp	☞ pg. 16
[26] Power Lamp	☞ pg. 16

Other Parts

27 Battery Pack Mount	☞ pg. 8
28 Viewfinder	☞ pg. 14
29 Grip Strap	☞ pg. 14
30 Camera sensor Be careful not to cover this area; a sensor necessary for shooting is built-in here.	
31 Video Light	☞ pg. 21
32 Microphone For use when recording.	
33 Eyepiece	☞ pg. 44
34 Shoulder Strap Eyelets	☞ pg. 15
35 Clock Battery Slot	☞ pg. 10
36 Tripod Mounting Socket	☞ pg. 15

A

AC Power Adapter/Charger ☞ pg. 8, 9
Animation Recording ☞ pg. 37
Auto Date Record ☞ pg. 26
Auto Focus ☞ pg. 32
Auto Shut off ☞ pg. 17, 38

B

Battery Pack ☞ pg. 8, 9, 51

C

Car Battery ☞ pg. 9
Charge Marker ☞ pg. 9
Charge The Battery Pack ☞ pg. 8
Clean The Camcorder ☞ pg. 44
Clock (Lithium) Battery ☞ pg. 10
Connections ☞ pg. 9, 42

D

Date/Time Display ☞ pg. 26
Date/Time Settings ☞ pg. 11
Demonstration Mode ☞ pg. 30
Digital Zoom ☞ pg. 29
Discharge The Battery Pack ☞ pg. 8
Diopter Adjustment ☞ pg. 14
Dubbing ☞ pg. 43

E

Electronic Fog Filter Mode ☞ pg. 25
Erase Protection ☞ pg. 13
Exposure Control ☞ pg. 31

F

Fade-In/Out ☞ pg. 23
Fast-Forward Tape ☞ pg. 38

G

Grip Adjustment ☞ pg. 14

H

High Speed Shutter Mode ☞ pg. 25

I

Instant Titles ☞ pg. 27

L

Load A Tape ☞ pg. 13

M

Manual Focus ☞ pg. 33
Menu Screen ☞ pg. 29, 30

N

ND Effect Mode ☞ pg. 25
Nega/Posi Mode ☞ pg. 25

P

Picture Stabilizer ☞ pg. 20
Power Switch Position ☞ pg. 16
Program AE With Special Effects ☞ pg. 24
Provided Accessories ☞ pg. 6

Q

Quick Review ☞ pg. 19

R

Record-Standby ☞ pg. 16
Recording Mode ☞ pg. 12
Retake ☞ pg. 19
Rewind The Tape ☞ pg. 38

S

Self-Timer ☞ pg. 36
Sepia ☞ pg. 25
Shoulder Strap Attachment ☞ pg. 15
Shuttle Search ☞ pg. 40
Snapshot Mode ☞ pg. 22
Specifications ☞ pg. 53
Still Playback ☞ pg. 40
Super LoLux (S.LX) ☞ pg. 29

T

Tally ☞ pg. 30
Tape Counter ☞ pg. 38
Tape Length Setting ☞ pg. 12
Tele Macro ☞ pg. 29
Time-Lapse Shooting ☞ pg. 37
Tracking ☞ pg. 39
Tripod Mounting ☞ pg. 15
Twilight ☞ pg. 25

U

Unload A Tape ☞ pg. 13

V

Video Light ☞ pg. 21
Viewfinder Indications ☞ pg. 47

W

White Balance ☞ pg. 34, 35
Wide Mode ☞ pg. 29
Wipe In/Out ☞ pg. 23

Z

Zooming ☞ pg. 18

DANGER:

Video Light

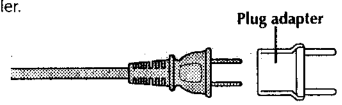
- The video light becomes extremely hot. Do not touch it either while in operation or soon after turning it off, otherwise serious injury may result.
- Do not place the camcorder into the carrying case immediately after using the video light, since it remains extremely hot for some time.
- When operating, keep a distance of about 30 cm (1 ft.) between the video light and people or object.
- Do not use near flammable or explosive materials.
- It is recommended that you consult your nearest JVC dealer for replacing the video light.

When using the AC Power Adapter/Charger in areas other than the USA

■ The provided AC Power Adapter/Charger features automatic voltage selection in the AC range from 110 V to 240 V.

USING HOUSEHOLD AC PLUG ADAPTER

In case of connecting the unit's power cord to an AC wall outlet other than American National Standard C73 series type use an AC plug adapter, called a "Siemens Plug", as shown.
For this AC plug adapter, consult your nearest JVC dealer.



INFORMATION

This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Change or modifications not approved by the party responsible for compliance could void the user's authority to operate the equipment. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.
Increase the separation between the equipment and receiver.
Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
Consult the dealer or an experienced radio/TV technician for help.

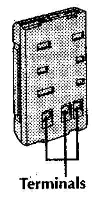
General Battery Precautions

- When the C-P6U or C-P7U (cassette adapter) is not functioning even when correctly operated, the battery is exhausted. Replace it with a fresh one.
- Use only the following battery:
  C-P6U or C-P7U .... AA (R6) size

Please make note of the following rules for battery use. When misused, the battery can leak or explode.

1. Refer to the C-P6U/C-P7U instructions when replacing the battery.
2. **Do not** expose the battery to excessive heat as it can leak or explode.
3. **Do not** dispose of the battery in a fire.
4. Remove the battery from the unit if it is to be stored for an extended period to avoid battery leakage which can cause malfunctions.

Battery Packs



The supplied battery pack is a nickel-cadmium battery. Before using the supplied battery pack or an optional battery pack, be sure to read the following cautions:

1. To avoid hazard . . .
....**do not** burn.
....**do not** short-circuit the terminals.
....**do not** modify or disassemble.
....use only specified chargers.

2. To prevent damage and prolong service life . . .
....**do not** subject to unnecessary shock.
....avoid repeated charging without fully discharging.
....charge in an environment where temperatures are within the tolerances shown in the chart below. This is a chemical reaction type battery—cooler temperatures impede chemical reaction, while warmer temperatures can prevent complete charging.
....store in a cool, dry place. Extended exposure to high temperatures will increase natural discharge and shorten service life.
....avoid prolonged uncharged storage.
....remove from charger or powered unit when not in use, as some machines use current even when switched off.

NOTES:

- *It is normal for the battery pack to be warm after charging, or after use.*
  Temperature Range Specifications
  Charging .... 10°C to 35°C (50°F to 95°F)
  Operation .... 0°C to 40°C (32°F to 104°F)
  Storage .... –10°C to 30°C (14°F to 86°F)
- *Recharging time is based on room temperature of 20°C (68°F).*
- *The lower the temperature, the longer recharging takes.*

Cassettes

To properly use and store your cassettes, be sure to read the following cautions:

1. During use . . .
- .... make sure the cassette bears the VHS-C mark.
- .... be aware that recording onto prerecorded tapes automatically erases the previously recorded video and audio signals.
- .... make sure the cassette is positioned properly when inserting.
- .... do not load and unload the cassette repeatedly without allowing the tape to run at all. This slackens the tape and can result in damage.
- .... do not open the front tape cover. This exposes the tape to fingerprints and dust.

2. Store cassettes . . .
- .... away from heaters or other heat sources.
- .... out of direct sunlight.
- .... where they won't be subject to unnecessary shock or vibration.
- .... where they won't be exposed to strong magnetic fields (such as those generated by motors, transformers or magnets).
- .... vertically, in their original cases.

Main Unit

1. For safety, DO NOT . . .
- .... open the camcorder's chassis.
- .... disassemble or modify the unit.
- .... short-circuit the terminals of the battery pack. Keep it away from metallic objects when not in use.
- .... allow inflammables, water or metallic objects to enter the unit.
- .... remove the battery pack or disconnect the power supply while the power is on.
- .... leave the battery pack attached when the camcorder is not in use.

2. Avoid using the unit . . .
- .... in places subject to excessive humidity or dust.
- .... in places subject to soot or steam such as near a cooking stove.
- .... in places subject to excessive shock or vibration.
- .... near a television set.
- .... near appliances generating strong magnetic or electric fields (speakers, broadcasting antennas, etc.).
- .... in places subject to extremely high (over 40°C or 104°F) or extremely low (under 0°C or 32°F) temperatures.

3. DO NOT leave the unit . . .
- .... in places of over 50°C (122°F).
- .... in places where humidity is extremely low. (below 35%) or extremely high (above 80%).
- .... in direct sunlight.
- .... in a closed car in summer.
- .... near a heater.

4. To protect the unit, DO NOT . . .
- .... allow it to become wet.
- .... drop the unit or strike it against hard objects.
- .... subject it to shock or excessive vibration during transportation.
- .... keep the lens directed at extremely bright objects for long periods.
- .... direct the eyepiece of the viewfinder at the sun.
- .... carry it by holding the viewfinder. Be sure to hold the main unit with both hands or use the grip.
- .... swing it excessively when using the shoulder strap.

About moisture condensation . . .
- ● You may have observed that pouring a cold liquid into a glass will cause drops of water to form on the glass' outer surface. This same phenomenon occurs on the head drum of a camcorder when it is moved from a cool place to a warm place, after heating a cold room, under extremely humid conditions or in a place directly subjected to the cool air from an air conditioner.
- ● Moisture on the head drum can cause severe damage to the video tape, and can lead to internal damage to the camcorder itself.

Serious malfunctioning

If malfunctioning occurs, stop using the unit immediately and consult your local JVC dealer.

SPECIFICATIONS

Camcorder

General

Format : VHS NTSC standard
Power source : DC 6.0 V ⎓
Power consumption : 5.4 W
Video light : 2.9 W
Signal system : NTSC-type
Video recording system
Luminance : FM recording
Color : Converted sub-carrier direct recording Conforms to VHS standard
Cassette : VHS C cassette
Tape speed
SP : 33.35 mm/sec. (1-5/16 ips)
EP : 11.12 mm/sec. (7/16 ips)
Recording time (max.)
SP : 40 minutes
EP : 120 minutes (with TC-40)

Operating temperature : 0°C to 40°C (32°F to 104°F)
Operating humidity : 35% to 80%
Storage temperature : –20°C to 50°C (–4°F to 122°F)
Weight : Approx. 720 g (1.6 lbs)
Dimensions : 91 (W) x 119 (H) x 198 (D) mm (3-8/5" x 4-11/16" x 7-13/16") (with the viewfinder fully tilted downward)
Pickup : 1/4" format CCD
Lens : F1.6, f = 3.9 to 62.4 mm, 16:1 power zoom lens with auto iris and macro control, filter diameter 40.5 mm
Viewfinder : Electronic viewfinder with 0.55" color LCD
White balance adjustment : Auto/Manual adjustment

Connectors

JLIP : ø3.5 mm, 4-pole, mini-head jack (compatible with RC-5325 plug)
Video : 1 Vp-p, 75 Ω unbalanced, analog output (via Video output connector)
Audio : –8 dBs, 1 kΩ analog output (via Audio output connector)

AC Power Adapter/Charger AA-V15U

Power requirement
U.S.A. and Canada : AC 120 V∿, 60 Hz
Other countries : AC 110 V to 240 V∿, 50/60 Hz
Power consumption : 23 W
Output
Charge : DC 8.5 V ⎓, 1.3 A
VTR : DC 6.3 V ⎓, 1.8 A
Charging system : Constant current, peak detection, timer controlled
Dimensions : 140 (W) x 42 (H) x 68 (D) mm (5-9/16" x 1-11/16" x 2-11/16")
Weight : Approx. 300 g (0.71 lbs)

Cassette Adapter C-P7U

Dimensions : 188 (W) x 25 (H) x 104 (D) mm (7-7/16" x 1" x 4-1/8")
Weight : Approx. 240 g (0.53 lbs)
Accessory : "AA (R6)"-size battery x 1

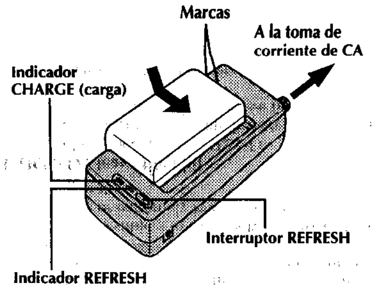
Provided Accessories .... ☞ pg. 6

Optional Accessories

- **Battery Packs BN-V12U, BN-V20U, BN-V856U**
- **Car Battery Charger BH-V3U**
- **Battery Charger BH-VC10U**
- **Car Battery Cord AP-V7U**
- **Compact VHS-C Cassettes TC-40/30/20**
- **Active Carrying Bag CB-V7U**
- **Audio/Video Cable**
- **JLIP-to-PC Cable VC-VJ49WU**
- **JLIP Video Producer**
- **Brush Kit**

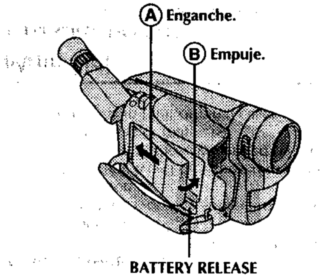
Some acccessories are not available in some areas. Please consult your nearest JVC dealer for details on accessories and their availability.

Specifications shown are for SP mode unless otherwise indicated. E & O.E. Design and specifications subject to change without notice.

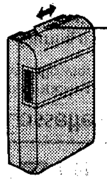


REFRESCADO (REFRESH)
El adaptador de CA se caracteriza por la función REFRESH que le permite descargar totalmente la batería antes de recargarla.

Efectúe la función REFRESH después de un mínimo de 5 cargas.
Para descargar la batería . . .
.... coloque la batería en el adaptador como se muestra en la ilustración de arriba. Luego presione REFRESH. El indicador REFRESH se enciende cuando se inicia la descarga y se apaga cuando la descarga ha terminado.



ATENCION:
Antes de desmontar la fuente de alimentación, asegúrese que la alimentación de la cámara de video esté desconectada. El no hacerlo puede producir un error de funcionamiento en la cámara de video.



Indicador de carga
Se incorpora un indicador de carga sobre la batería para ayudarle a recordar si ha sido cargada o no. Los dos colores indicadores (rojo y negro), le permiten seleccionar la carga y la descarga.

Alimentación
Esta cámara de video posee un sistema de alimentación de 3 vías que le permite seleccionar la fuente de alimentación más apropiada.

NOTAS:
- *Sin alimentación no hay ninguna función disponible.*
- *Utilice exclusivamente la alimentación indicada.*
- *No utilice las unidades de alimentación suministradas con otro equipo.*

CARGA DE LA BATERIA

1 **ALIMENTACION**
Conecte el cable de alimentación de CA del cargador a una toma de corriente.

2 **COLOCACION DE LA BATERIA**
Alinee las marcas y deslice la batería en la dirección de la flecha hasta que quede bloqueada en su lugar.
- El indicador CHARGE comienza a destellar para indicar que se ha iniciado la carga.

3 **EXTRACCION DE LA BATERIA**
Cuando el indicador CHARGE deja de destellar y permanece encendido, la carga ha terminado.
Deslice la batería en el sentido opuesto al de la flecha.

Batería	Tiempo de carga	Tiempo de descarga
BN-V11U	aprox. 1 h 10 min	aprox. 3 h 30 min
BN-V12U	aprox. 1 h 10 min	aprox. 3 h 30 min
BN-V20U	aprox. 1 h 50 min	aprox. 6 h 40 min

USO DE LA BATERIA

1 **COLOCACION DE LA BATERIA**
Enganche el lado extremo de la batería en la cámara de video (Ⓐ) y empuje la batería hasta que se bloquee en el lugar (Ⓑ).

2 **EXTRACCION DE LA BATERIA**
Deslice **BATTERY RELEASE** y extraiga la batería.

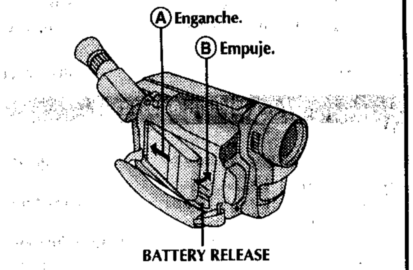
Batería	Tiempo de grabación aproximado (unidad: min)
BN-V11U	70 (40)
BN-V12U	70 (40)
BN-V20U	110 (65)

( ) : Cuando está encendida el foco.

INFORMACION:
El VU-V856KIT es un juego compuesto de la batería BN-V856U y del cargador/adaptador de CA AA-V80U. La batería BN-V856U suministra aprox. 7 horas de tiempo de grabación cuando el foco está desactivado. También lea completamente los manuales de instrucción del VU-V856KIT. Es imposible cargar la batería BN-V856U utilizando el cargador/adaptador de CA suministrado. Use el cargador/adaptador de CA AA-V80U opcional.

Si la unidad comienza a funcionar mal, deje de usarla inmediatamente y consulte a su concesionario local de JVC.

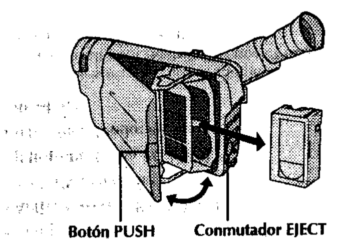
ALIMENTACION



Utilización de la batería
Enganche el lado extremo de la batería en la cámara de video (Ⓐ) y empuje la batería hasta que se bloquee en el lugar (Ⓑ).
(Procedimiento para carga, ☞ p. 8)

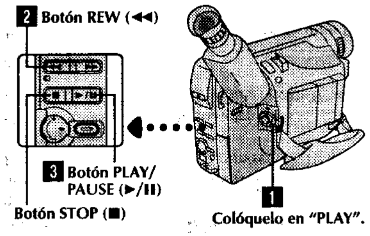
Para extraer la batería
Deslice **BATTERY RELEASE** y extraiga la batería.

INSERCION DEL CASSETTE DE VIDEO



1 Deslice **EJECT** para abrir el portacassette.
2 Inserte cassette de video.
3 Presione **PUSH** para cerrar el portacassette.
(Por más detalles, ☞ p. 13.)

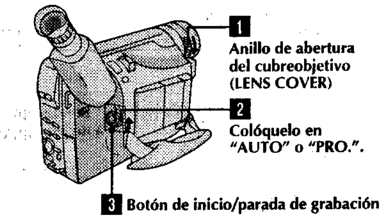
REPRODUCCION



1 Ajuste el interruptor de alimentación en "PLAY".
2 Presione **REW** (◀◀).
— La cinta se detiene automáticamente al comienzo de la misma.
3 Presione **PLAY/PAUSE** (▶/II).
— Comienza la reproducción y la imagen aparece.
- Presione **STOP** (■) para detener la grabación.
(Por más detalles, ☞ p, 38.)

O simplemente reproduzca la cinta en un VCR de VHS utilizando el adaptador de cassette (VHS Playpak). ☞ p. 41

FILMACION


1 Anillo de abertura del cubreobjetivo (LENS COVER)
2 Colóquelo en "AUTO" o "PRO.".
3 Botón de inicio/parada de grabación

1 Gire el anillo LENS COVER de abertura/cierre para abrir el cubreobjetivo.
2 Adjuste el interruptor de alimentación en "AUTO" o "PRO.".
— La lámpara de alimentación se encenderá y aparecerá una imagen.
3 Presione el botón inicio/parada de grabación.
— Comenzará la grabación.
- Para detener temporariamente la grabación, presione nuevamente el botón de inicio/parada de grabación. (Por más detalles, ☞ p. 16 y 17.)

SECTION 1
DISASSEMBLY

1.1 SERVICE CAUTIONS

1.1.1 Precautions

1. Before disassembling/re-assembling the set as well as soldering parts, make sure to disconnect the power cable.
2. When disconnecting/connecting connectors, pay enough attention to wiring not to damage it.
3. In general, chip parts such as resistor, shorting jumpers (0-ohm resistor), ceramic capacitors, diodes, etc. can not be reused after they were once removed.
4. When installing parts, be careful not to do with other parts as well as not to damage others.
5. When removing ICs, be careful not to damage circuit patterns.
6. Tighten screws properly during the procedures. Unless specified otherwise, tighten screws at torque of 0.2 N•m (2.0 kgf•cm).

1.1.2 How to read the disassembly and assembly

(For Cabinet Parts)

STEP /LOC NO.	PART	Fig. No.	REMOVAL	
			*UNLOCK/RELEASE/ UNPLUG/UNCLAMP/ UNSOLDER	Note
①	CASSETTE COVER ASSEMBLY	C1	(S1), 4(L1), 2(L2), (L3) PUSH BUTTON	<NOTE 1>
②	COVER (VF)	C2	2(S2),(L4)	–
③	TOP COVER	C3	2(S2), 2(L5), 2(L6), 2(L7)	

① ② ③ ④ ⑤

① : Order of steps in Procedure
When reassembling, preform the step(s) in the reverse order. These numbers are also used as the identification (location) No. of parts Figures.

② : Part to be removed or installed.

③ : Fig. No. showing Procedure or Part Location.

C = Cabinet
CA = Camera
D = Deck

④ : Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped or unsoldered.

P = Spring
W = Washer
S = Screw
* = Unhook, unlock, release, unplug or unsolder.
2(S2) = 2 Screws (S2)

⑤ : Adjustment information for installation.

1.1.3 Connection of the wires

1. Pull the connector structure upward to release the clamp when removing or inserting the flat wire cable.

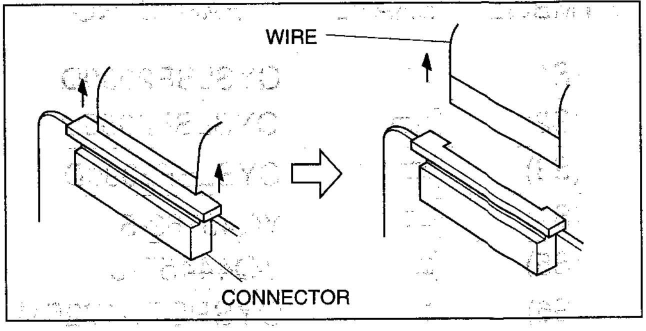
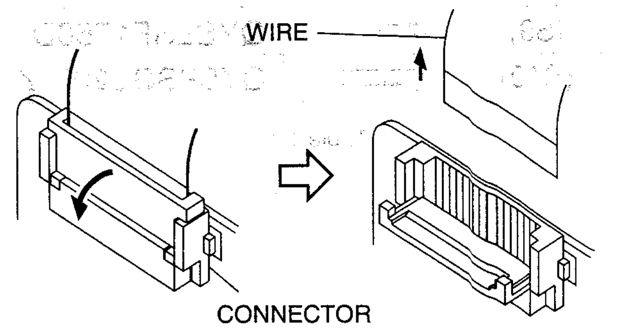


Fig. 1-1-1



NOTE: *After removing the wire, return the stopper to its original position, because it is apt to come off if it is left open.*

Fig. 1-1-2

1.1.4 Main screws to deal with disassembly/assembly

Table 1-1-1 lists screws by their symbols correspond to those shown in figures of this section "Disassembly".

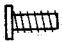
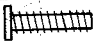
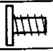
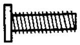
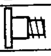
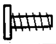
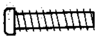
SYMBOL	SHAPE	PARTS NO.
(S1)		QYSLSP2030D
(S2)		QYSLSF2055D
(S3)		QYSLSF2090D
(S4)		YQ43762-5
(S5)		YQ44457-3
(S6)		QYSPSTU1725M
(S7)		LY30018-050A
(S8)		LY41173-001A
(S9)		QYSLSF1750D
(S10)		QYSPSGU2080Z

Table 1-1-1

1.2 TOOLS REQUIRED FOR ADJUSTMENTS

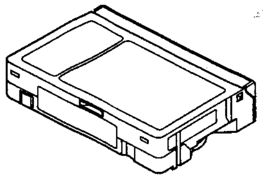
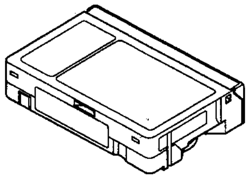
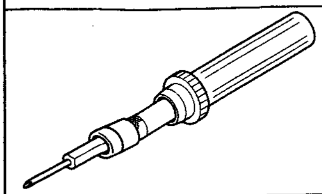
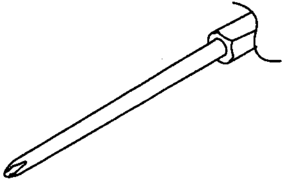
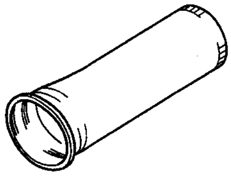
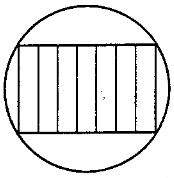
1 Alignment tape (for SP interchangeability) MHP-C	2 Alignment tape (for N. SP PB Y/C level) MHV-2C
	
3 TORQUE DRIVER YTU94088	4 BIT YTU94088-003
	
5 INF ADJUSTMENT LENS YTU92001B	6 COLOR BAR CHART YTU92001-051
	

Table 1-2-1

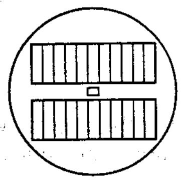
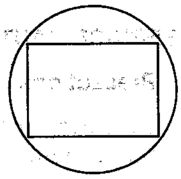
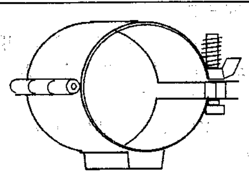
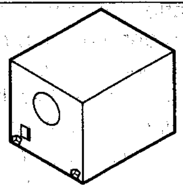
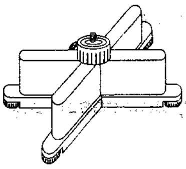
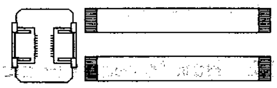
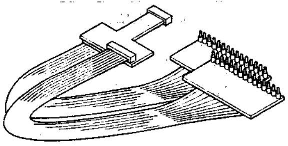
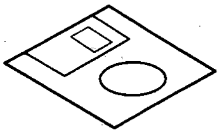
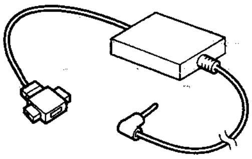
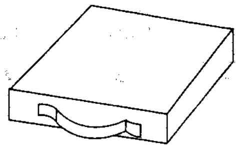
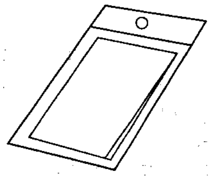
7 GRAY SCALE CHART YTU92001-052	8 WHITE BALANCE CHART YTU92001-053
	
9 INF LENS HOLDER YTU94087	10 LIGHT BOX YTU93072A-1
	
11 CAMERA STAND YTU93079	12 PATCH CORD YTU93097A
	
13 JIG CONNECTOR CABLE YTU93082C	14 SERVICE SUPPORT SOFTWARE YTU94057-37
	
15 PC CABLE QAM0099-002	16 SOLDERING KIT YTU96016B
	
17 CLEANING CLOTH KSMM-01	
	

Table 1-2-2

1,2. Alignment tape
To be used for check and adjustment of interchangeability of the mechanism.
(Video: Color bar signal, Audio: Non-signal)

3. Torque driver
Be sure to use to fastening the mechanism and exterior parts because those parts must strictly be controlled for tightening torque.

4. Bit
This bit is slightly longer than those set in conventional torque drivers.

5. INF adjustment lens
To be used for adjustment of the camera system.

6. Color bar chart
To be used for adjustment of the camera system.

7. Gray scale chart
To be used for adjustment of the camera system.

8. White balance chart
To be used for adjustment of the camera system. (for white balance adjustment)

9. INF lens holder
To be used together with the camera stand (11) for operating the VideoMovie in the stripped-down condition such as the status without the exterior parts or for using commodities that are not yet conformable to the interchangeable ring.

10. Light box
To be used for adjustment of the camera system.

11. Camera stand
To be used together with the INF adjustment lens holder.

12. Patch cord
To be used to connect electrical parts, P.C. boards, etc. for servicing.

13. JIG connector cable
Connected to CN25 of the main board and used for measuring error rates, etc.

14. Service support software
To be used for adjustment with a personal computer.

15. PC cable
To be used to connect the VideoMovie and a personal computer with each other when a personal computer is used for adjustment.

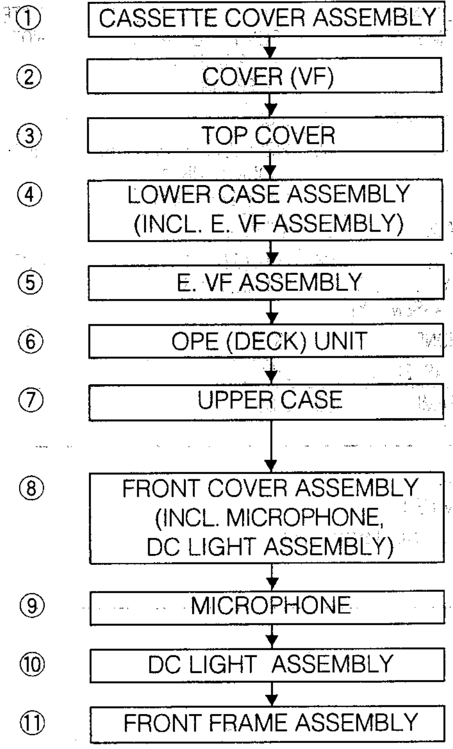
16. Soldering kit
Thin head is made so that it can be inserted into small spaces.

17. Cleaning cloth
Recommended cleaning cloth to wipe down the video heads, mechanism (tape transport system), optical lens surface.

1.3 DISASSEMBLY/ASSEMBLY OF CABINET PARTS

1.3.1 Disassembly flow chart

This flowchart indicates the disassembly step for the cabinet parts and board assembly in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in reverse order. Bend, route and dress the flat cables as they were originally.



① CASSETTE COVER ASSEMBLY
② COVER (VF)
③ TOP COVER
④ LOWER CASE ASSEMBLY (INCL. E. VF ASSEMBLY)
⑤ E. VF ASSEMBLY
⑥ OPE (DECK) UNIT
⑦ UPPER CASE
⑧ FRONT COVER ASSEMBLY (INCL. MICROPHONE, DC LIGHT ASSEMBLY)
⑨ MICROPHONE
⑩ DC LIGHT ASSEMBLY
⑪ FRONT FRAME ASSEMBLY

1.3.2 Disassembly method

STEP /LOC NO.	PART	Fig. No.	REMOVAL	
			*UNLOCK/RELEASE/ UNPLUG/UNCLAMP/ UNSOLDER	Note
①	CASSETTE COVER ASSEMBLY	C1	(S1), 4(L1), 2(L2), (L3) PUSH BUTTON	<NOTE 1>
②	COVER (VF)	C2	2(S2), (L4)	–
③	TOP COVER	C3	2(S2),2(L5), 2(L6), 2(L7)	–
④	LOWER CASE ASSEMBLY (INCL. E.VF ASSEMBLY)	C4	9(S2), 3(S3), (S1), (L8), (L9) (L10), (L11), (L12), 2(L13) *CONNECTOR Ⓐ, Ⓑ CAP (RCA JACK) COVER (JIG)	<NOTE 2> <NOTE 3> <NOTE 4>
⑤	E. VF ASSEMBLY	C5	2(S2)	–
⑥	OPE (DECK) UNIT	C6	2(S2), (L14), (L15), (L16) *CONNECTOR Ⓒ CAP (REAR JACK)	<NOTE 4>
⑦	UPPER CASE	C7	4(S2), (L16)	–
⑧	FRONT COVER ASSEMBLY (INCL. MIC DC LIGHT ASSEMBLY)	C8	(S4), (S2), (L17), (L18) *CONNECTOR Ⓓ	<NOTE 4>
⑨	MICROPHONE		(S2)	–
⑩	DC LIGHT ASSEMBLY		2(L19)	–
⑪	FRONT FRAME ASSEMBLY	C9	2(S5)	–

List of Abbreviations:
(S1)=Screw (S1)
4(L1)=4 Locking Tabs (L1)

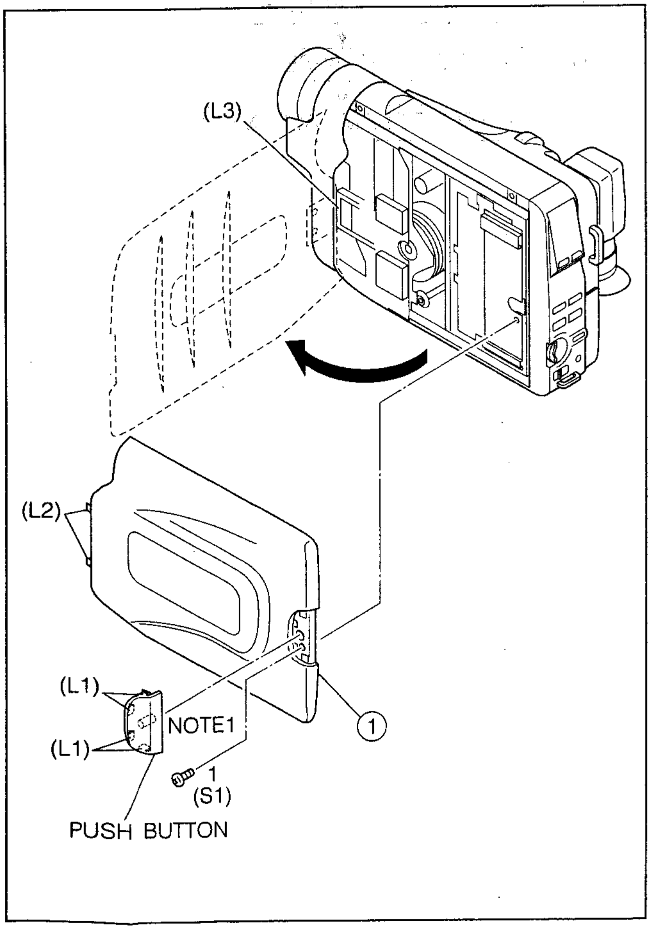


Fig. C1

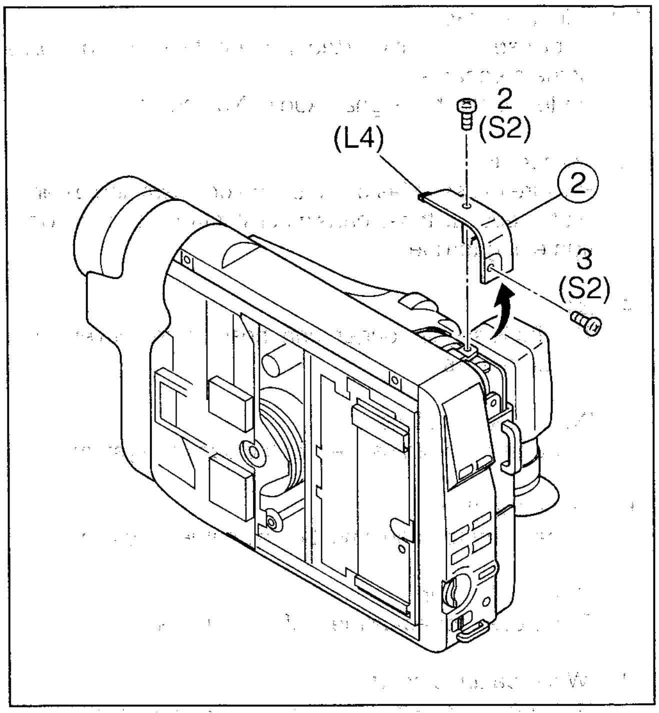


Fig. C2

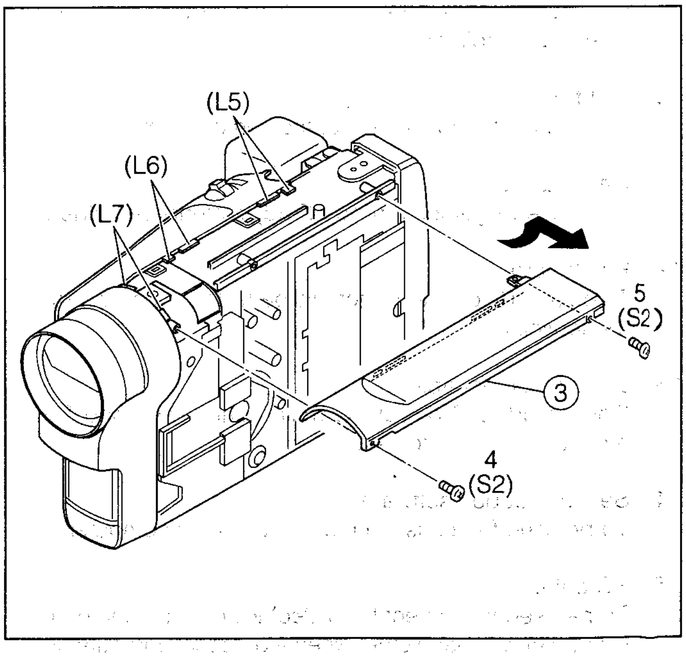


Fig. C3

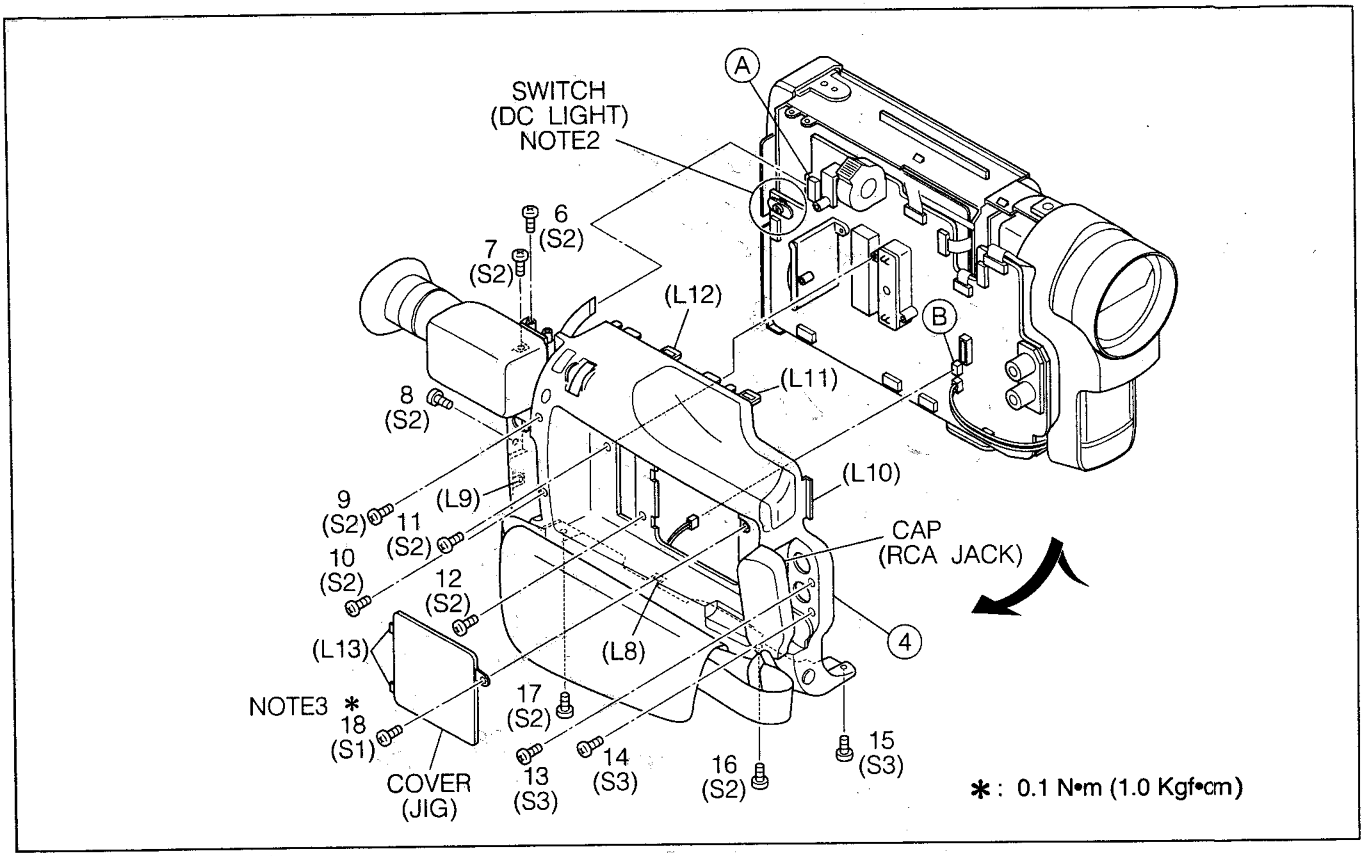

SWITCH
(DC LIGHT)
NOTE2
A
6
(S2)
7
(S2)
(L12)
B
(L11)
8
(S2)
(L10)
9
(S2)
(L9)
11
(S2)
CAP
(RCA JACK)
10
(S2)
12
(S2)
(L13)
4
(L8)
NOTE3 *
18
(S1)
17
(S2)
14
(S3)
13
(S3)
15
(S3)
16
(S2)
COVER
(JIG)
*: 0.1 N•m (1.0 Kgf•cm)

Fig. C4

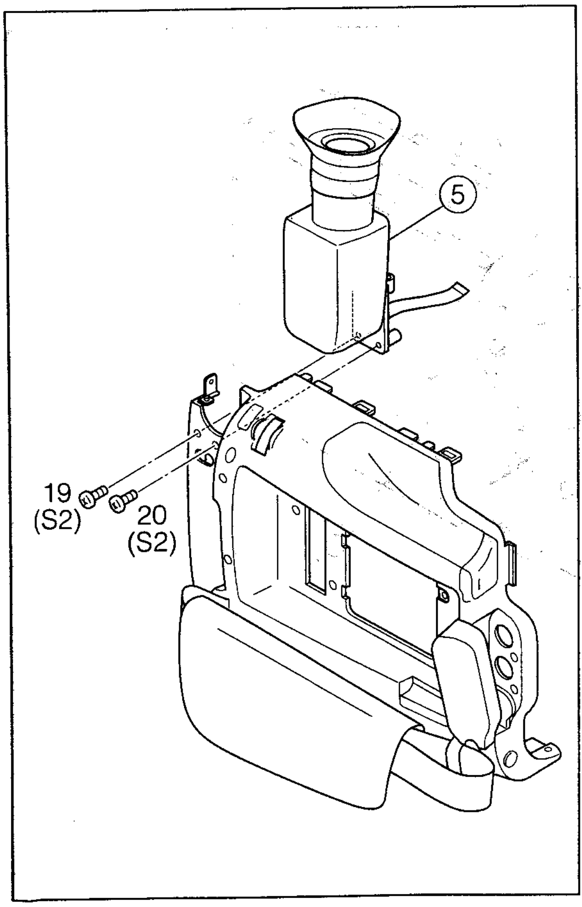


Fig. C5

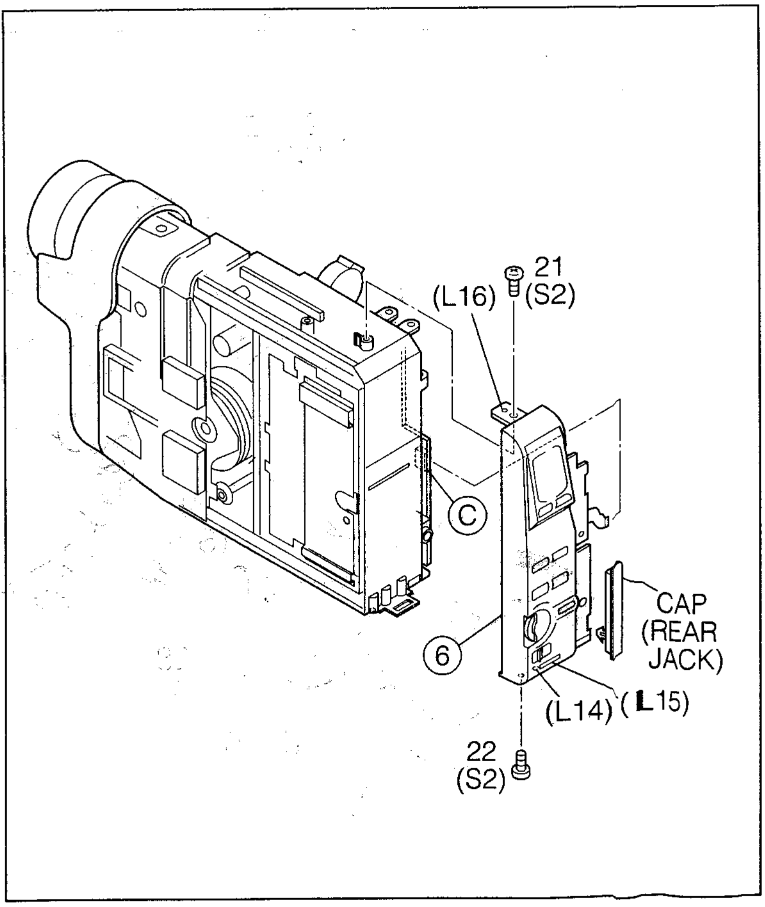

21
(L16)
(S2)
C
CAP
(REAR
JACK)
6
(L14)
(L15)
22
(S2)

Fig. C6

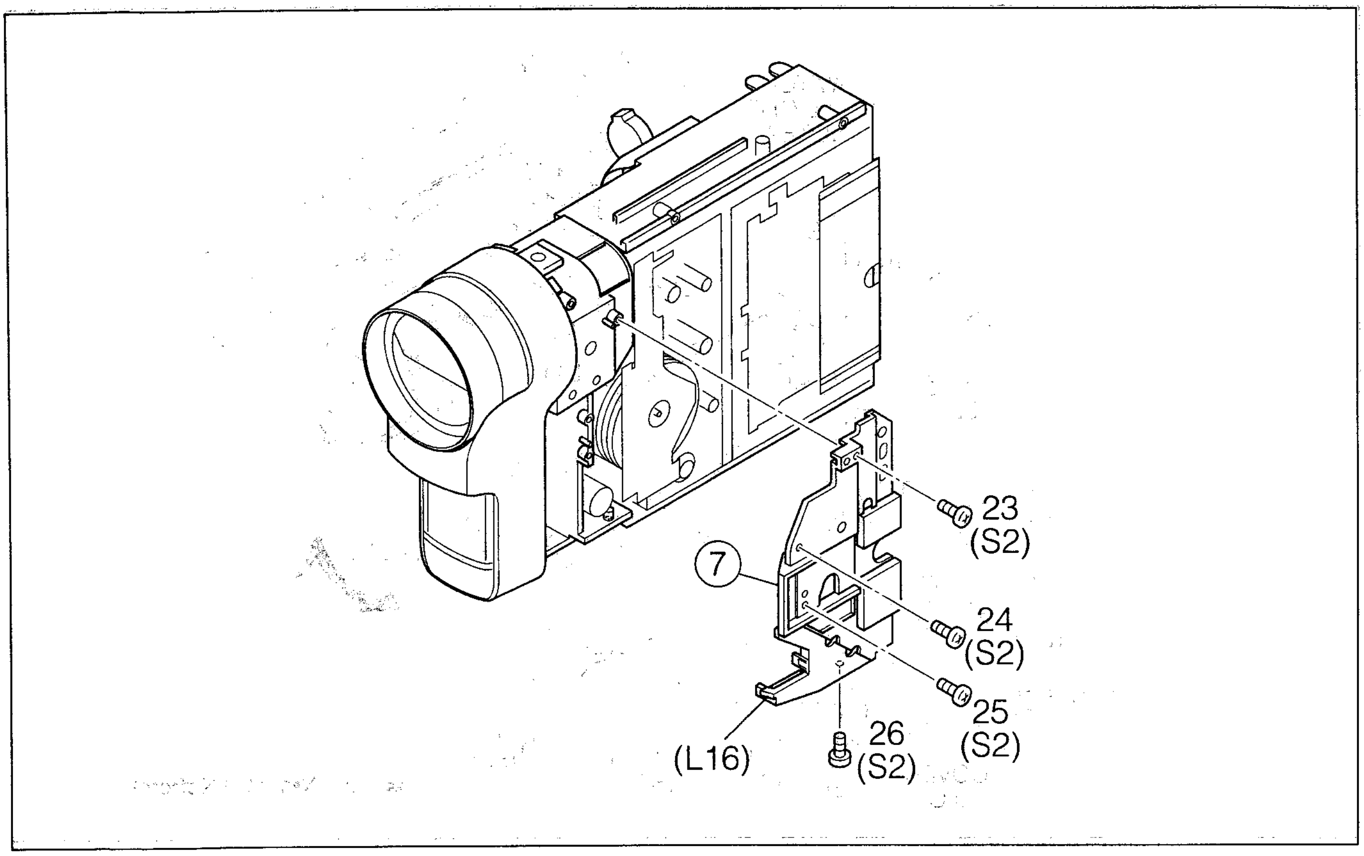

23
(S2)
7
24
(S2)
25
(S2)
26
(S2)
(L16)

Fig. C7

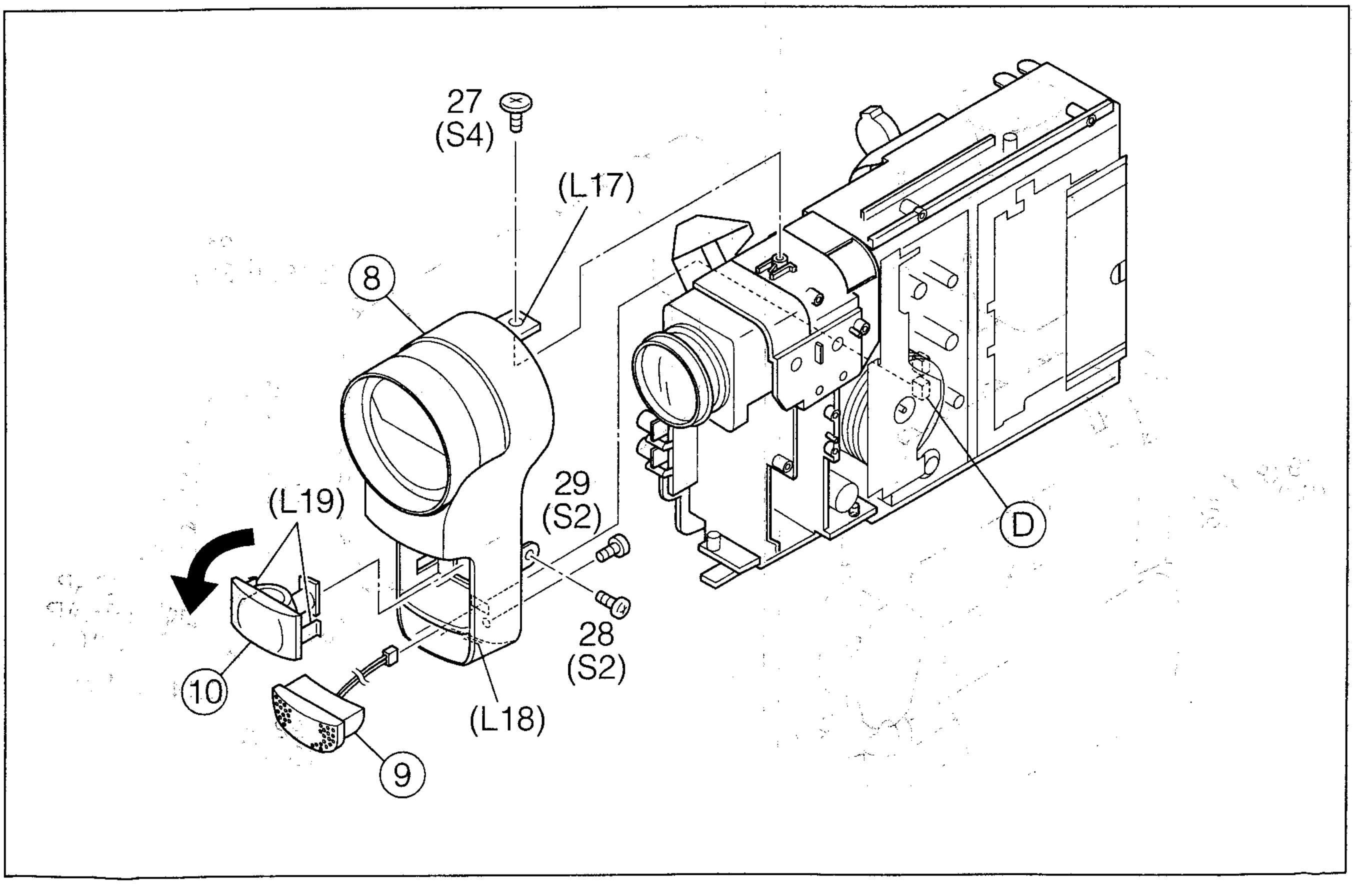

27
(S4)
(L17)
8
29
(S2)
(L19)
D
10
28
(S2)
(L18)
9

Fig. C8

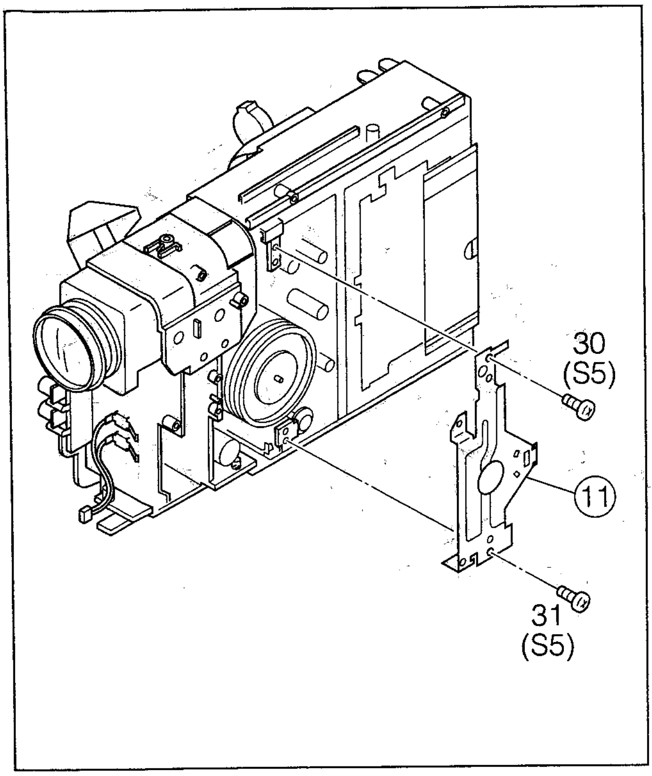

30
(S5)
11
31
(S5)

Fig. C9

Reference Notes:
<NOTE 1>
Remove the push button, then remove one screw (1).

<NOTE 2>
When removing the LOWER CASE assembly, pay careful attention to the knob of the switch (DC LIGHT) to get it neither damaged nor lost.

<NOTE 3>
When removing the door case together with the cover jig, it is not required to remove the screw of No. 18.

<NOTE 4>
Destination of connectors
Note: *Three kinds of double-arrows in connection tables respectively show kinds of connector/wires.*

⟷ : Board to Board connector
⟺ : Flat wire
↔ : Wire

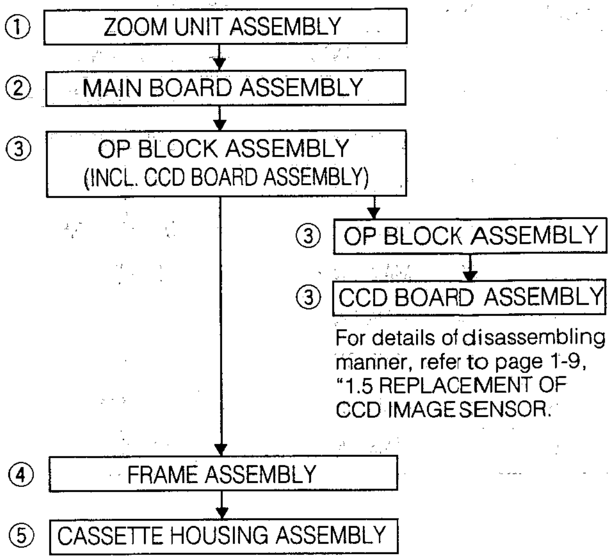
Con-nector	No. of Pins	Connector		
Ⓐ	20	E. VF (COLOR)	⟺	MAIN CN11
Ⓑ	2	LITHIUM	↔	MAIN CN26
Ⓒ	10	OPE (DECK) UNIT	⟺	MAIN CN13
Ⓓ	2	MIC	↔	MAIN CN8

1.4 DISASSEMBLING/REASSEMBLING CAMERA SECTION AND DECK SECTION

1.4.1 Flowchart of disassembling

The following flowchart shows the disassembling order of the camera section and deck section. When reassembling the camera section and deck section, follow this flowchart in the reverse order.

<Camera section/Deck section>


① ZOOM UNIT ASSEMBLY
② MAIN BOARD ASSEMBLY
③ OP BLOCK ASSEMBLY (INCL. CCD BOARD ASSEMBLY)
③ OP BLOCK ASSEMBLY
③ CCD BOARD ASSEMBLY
④ FRAME ASSEMBLY
⑤ CASSETTE HOUSING ASSEMBLY

For details of disassembling manner, refer to page 1-9, "1.5 REPLACEMENT OF CCD IMAGE SENSOR."

1.4.2 Disassembly method

STEP /LOC NO.	PART	Fig. No.	REMOVAL	
			*UNLOCK/RELEASE/ UNPLUG/UNCLAMP/ UNSOLDER	Note
①	ZOOM UNIT ASSEMBLY	D1	3(S2) *CONNECTOR Ⓔ	<NOTE 1>
②	MAIN BOARD ASSEMBLY	D2	2(S2), (S6) *CONNECTOR Ⓕ,Ⓖ,ⒽⒿ Ⓚ,Ⓛ,Ⓜ,Ⓝ,Ⓞ	<NOTE 1>
③	OP BLOCK ASSEMBLY	D3	2(S7) CUSHION (OP)	–
④	FRAME ASSEMBLY	D4	2(S8), (S9)	–
⑤	CASSETTE HOUSING ASSEMBLY	D5	4(S5)	–

List of Abbreviations:
3(S2) = 3 Screws (S2)

Reference Notes:

<NOTE 1>

Destination of connectors

Note: *Three kinds of double-arrows in connection tables respectively show kinds of connector/wires.*

⟷ : Board to Board connector

⇔ : Flat wire

↔ : Wire

Con-nector	No. of Pins	Connector
Ⓔ	14	MAIN CN18 ⇔ ZOOM UNIT
Ⓕ	2	MAIN CN4 ↔ LOADING MOTOR
Ⓖ	10	MAIN CN1 ⇔ DRUM MOTOR
Ⓗ	11	MAIN CN15 ⇔ DRUM HEAD
Ⓙ	14	MAIN CN2 ⇔ MECHA SENSOR
Ⓚ	22	MAIN CN15 ⇔ OP BLOCK
Ⓛ	14	MAIN CN22 ⇔ CCD
Ⓜ	11	MAIN CN7 ⇔ A/C HEAD
Ⓝ	18	MAIN CN3 ⇔ CAPSTAN MOTOR
Ⓞ	2	MAIN CN14 ↔ DC LIGHT

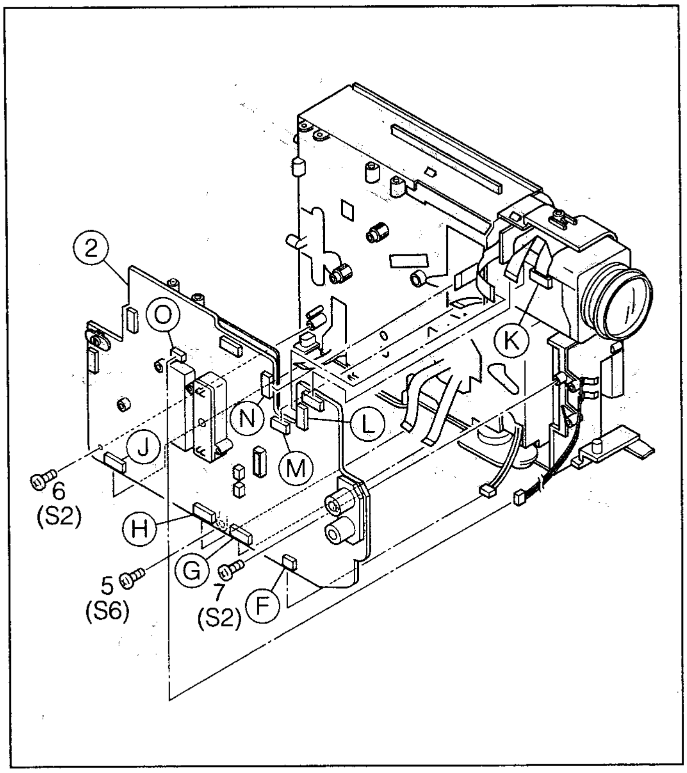


Fig. D2

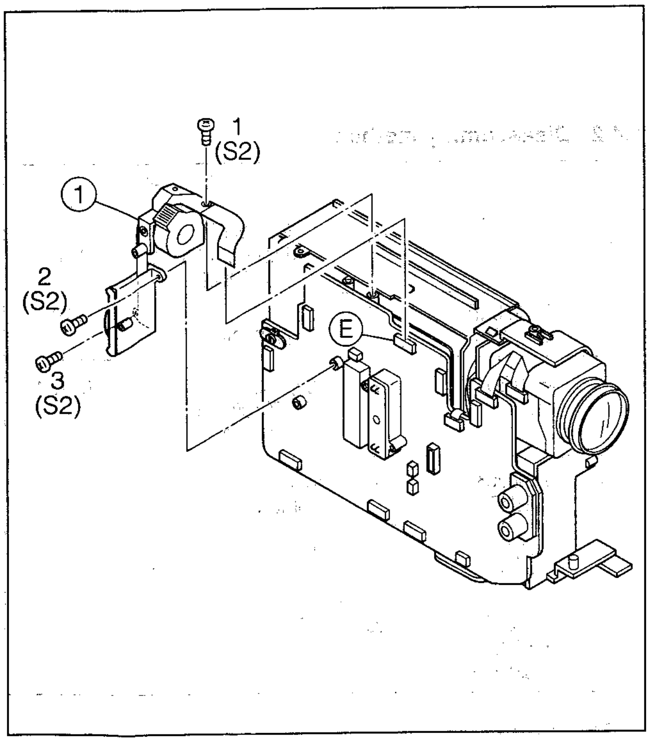


Fig. D1

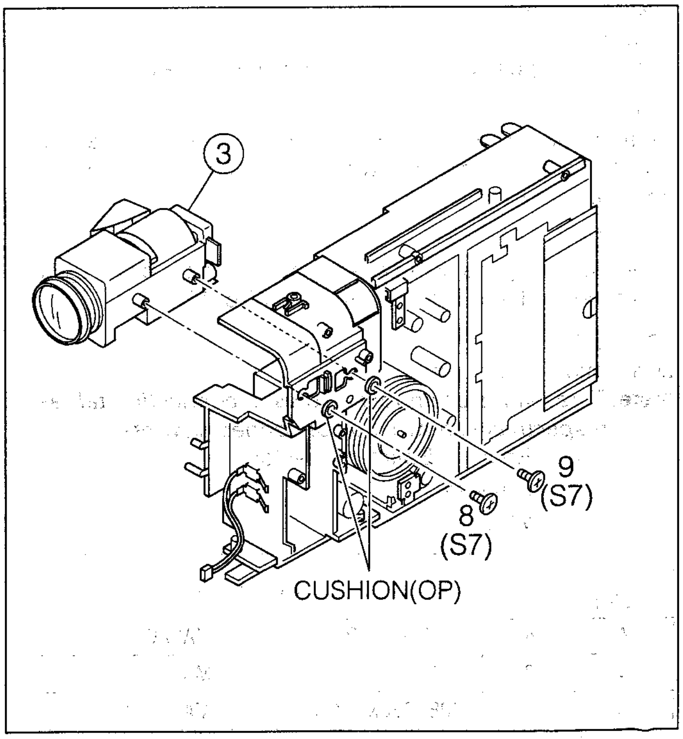


Fig. D3

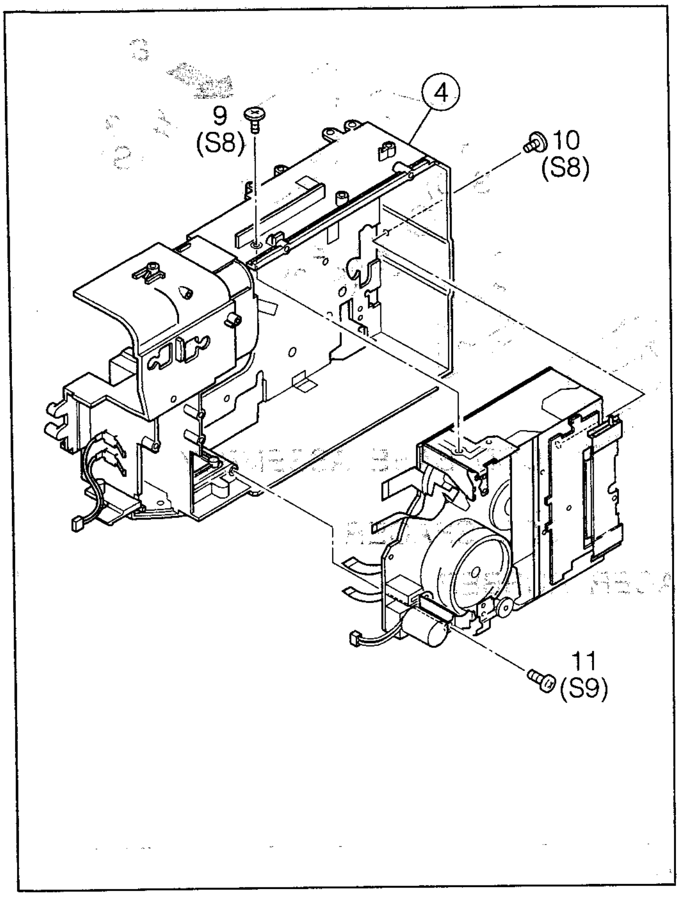


Fig. D4

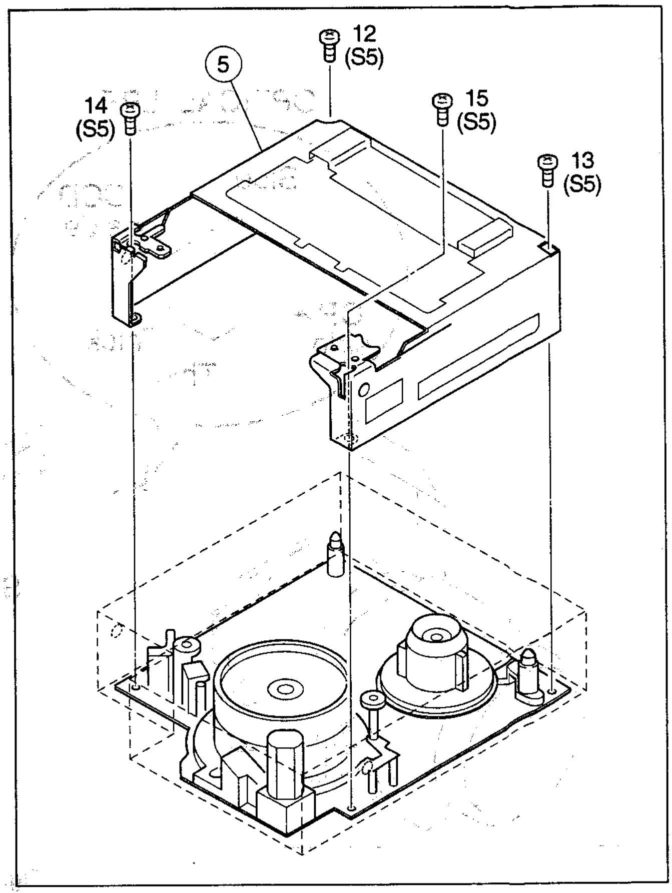


Fig. D5

1.5 REPLACEMENT OF CCD IMAGE SENSOR

Notes:

- *Pay the most careful attention to the transparent glass and optical LPF of the CCD image sensor so a not the soil and damage them. If something is soiled with finger-prints, etc., gently clean it with silicon-processed paper/cloth or chamois.*
- *When the CCD image sensor is shipped from the factory, there are protection seals applied onto the transparent glass. Leave the protector as it is, and take it off just before assembling the CCD image sensor to the OP block.*

1.5.1 Removal of CCD image sensor

1. Remove two screws (1, 2) securing the CCD base assy, and disassemble the CCD spacer, the optical LPF, spacer rubber.

1.5.2 Installation of new CCD image sensor

1. Remove the protection seal from a new CCD image sensor. Next, put the optical LPF, spacer rubber, CCD spacer on the CCD image sensor as they are piled up in this order. At that time, make sure of orientation of each item refering to the following table (see Fig. 1-5-1).

Part Name	Orientation
CCD image sensor	Mark is on the right viewed as indicated by the arrow ⓐ.
Spacer rubber	IC side is horizontal.
Optical LPF	The thicker element next to blue glass is set in the direction of the arrow ⓐ .

2. Fix the CCD base assy to OP block with the two screws (1, 2) . At that time, be careful of the orientation.
3. After completion of all P.C. boards to the camera section, observe the monitor to confirm no vignetting caused by the bodytube, rings, lens hood, etc. If no vignetting is observed, it can be said that image's parallel, horizontality and centering are correct.

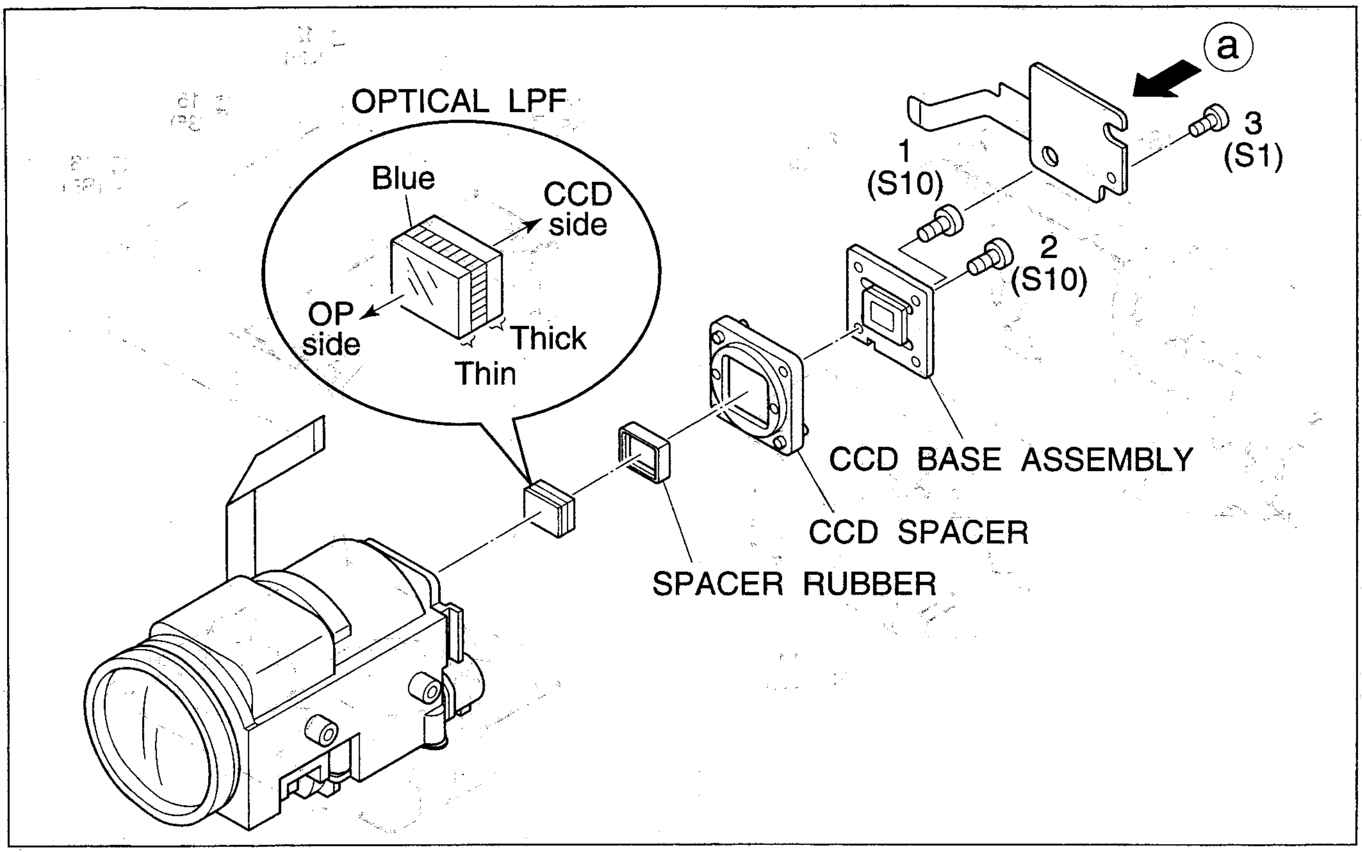


Fig. 1-5-1

1.6 REPLACEMENT OF CCD BOARD ASSY

1. Remove one screw (3).
2. Unsolder at the fourteen points on the CCD board assy.

Note: *1. Remove the screw (3) only when the CCD board assy needs replacement.*
2. When installing a new CCD board assy, carry out the above-mentioned procedure in the reverse order.

1.7 TAKE OUT CASSETTE TAPE

In the event that the set enters the emergency mode as it is loaded with a cassette tape and the cassette tape cannot be ejected with the EJECT button, manually, take it out of the set according to the following procedure.

Note: *If the mechanism comes into the unloading mode as the cassette tape is not held by hand, it results in tape damage.*

1. Disconnect the set from the power source.
2. Remove the cassette cover assembly, COVER (VF), top cover, (See Fig. C1, C2 and C3, Page 1-1, 2, 3 and 4)
3. Connect a jumper wire to each pole of the loading motor as shown by the magnified view ⓑ (Fig. 1-7-1)
4. While holding down the cassette housing by hand, connect the jumper wires to a battery to run the mechanism to the EJECT position four unloading. If this unloading operation is performed as the cassette housing is not held down by hand, the front lid of the cassette may damage the tape when it is ejected.
5. For taking in the slack of the tape, run the mechanism to the EJECT position as the front lid of the cassette is left open, and turn the take-up reel in the forward direction to wind up the tape. After confirming that the tape has completely been wound up and the supply reel is idling, take the cassette tape out of the cassette housing.

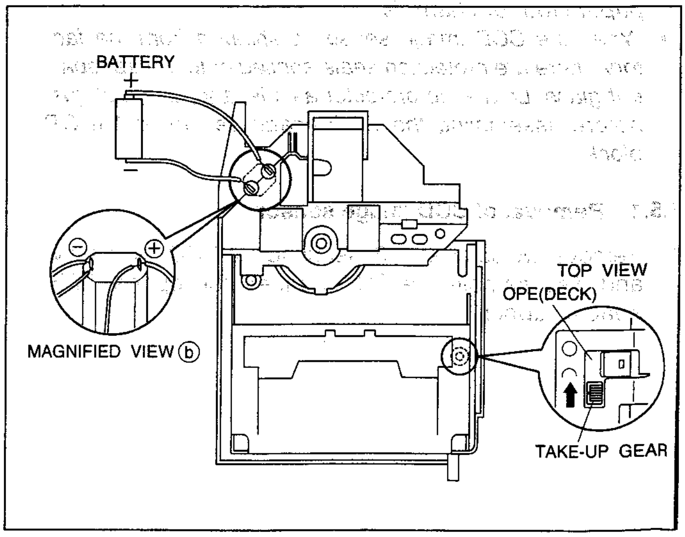


Fig. 1-7-1

1.8 EXTENSION CABLE CONNECTION

Connector	Pins	Connection			Parts Number
①	22	MAIN CN15	←→	OP BLOCK	YTU94074-22 YTU94077-22
②	14	MAIN CN22	←→	CCD	YTU94074-14 YTU94077-14
③	11	MAIN CN7	←→	A/C HEAD	YTU94074-11 YTU94077-11
④	18	MAIN CN3	←→	CAPSTAN MOTOR	YTU94074-18 YTU94077-18
⑤	14	MAIN CN2	←→	MECHA SENSOR	YTU94074-14 YTU94077-14
⑥	11	MAIN CN5	←→	DRUM HEAD	YTU94074-11 YTU94077-11
⑦	10	MAIN CN1	←→	DRUM MOTOR	YTU94074-10 YTU94077-10
⑧	2	MAIN CN4	←→	LOADING MOTOR	YUJ40095A-2
⑨	20	MAIN CN11	←→	E. VF (COLOR)	YTU94074-20 YTU94077-20
⑩	10	MAIN CN13	←→	OPE (DECK) UNIT	YTU94074-10 YTU94077-10
⑪	14	MAIN CN18	←→	ZOOM UNIT	YTU94074-14 YTU94077-14

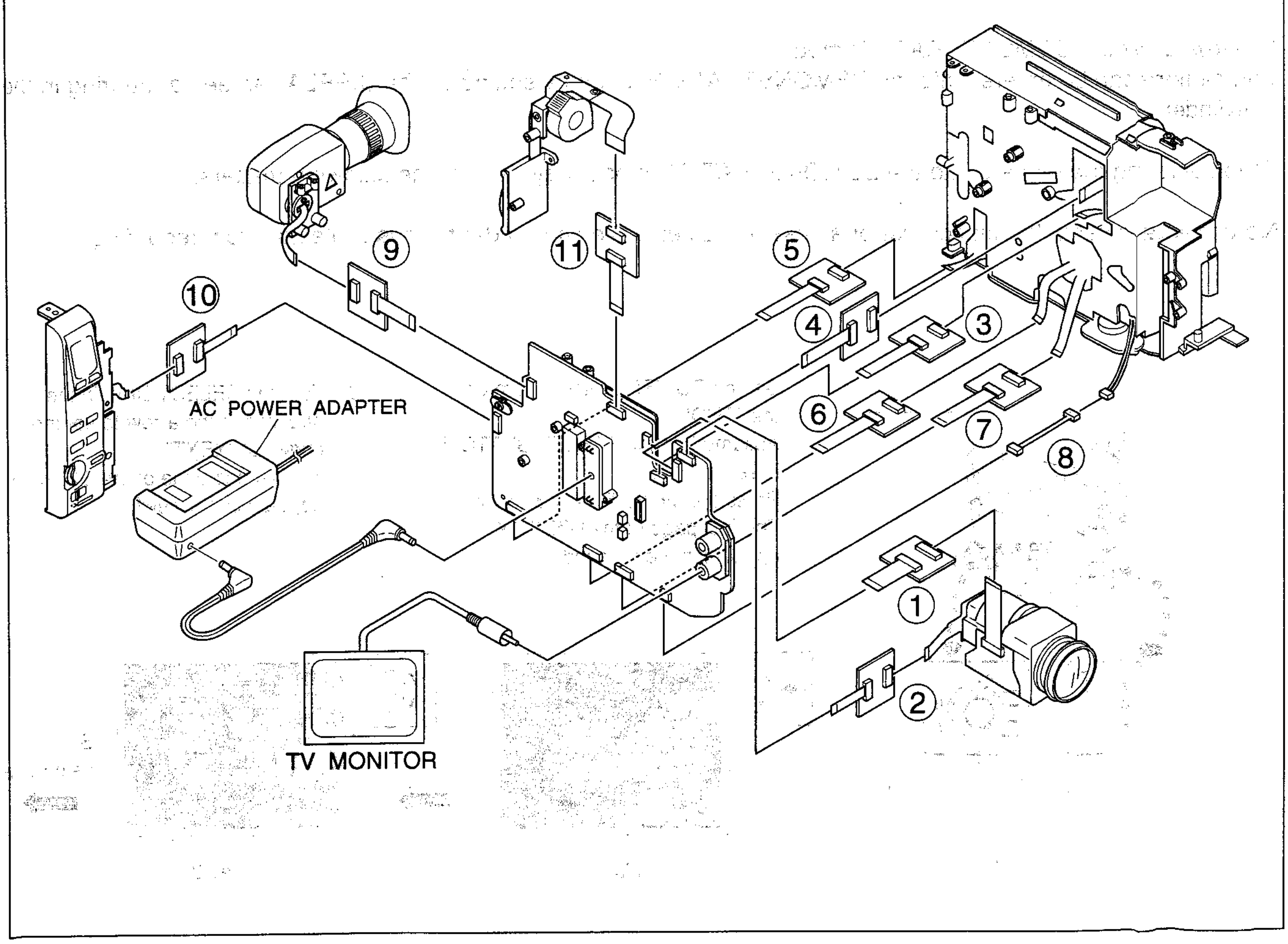


Fig. 1-8-1

1.9 EMERGENCY DISPLAY

Whenever some abnormal signal is supplied to mechacon CPU, an error number (E 04, for example) displayed in the electronic view finder.

- In an emergency mode, all operations except turning on/off the POWER switch are ineffectual.

E. VF	Symptom	Mode when observed	Resulting mode
E07	Short circuit of capstan MDA	Power ON	Power OFF
E06	CAPSTAN FG input absent	EDIT	Power OFF
E04	DRUM FF input absent	DRUM rotation	Power OFF
E03	SUPPLY REEL FG input absent	REC, PLAY, SEARCH, FF	UNLOADING →Power OFF
E02	Mode control motor rotates for more than 10 sec without shift to next mode.	UNLOADING	Power OFF
E01	Mode control motor rotates for more than 10 sec without shift to next mode.	LOADING	Power OFF
E00	Overtime the programming transaction	REC, PLAY	Power OFF

1.10 DEMONSTRATION MODE

This model has the DEMONSTRATION mode.

1) How to set the DEMONSTRATION mode.

The camera can be entered into the DEMONSTRATION mode by setting on the DISPLAY screen appearing in the viewfinder.

When entering the camera into the DEMONSTRATION mode, pay heed to the following matters.

No cassette is set in the camcorder or a cassette is set in the camcorder but it is protected from recording.

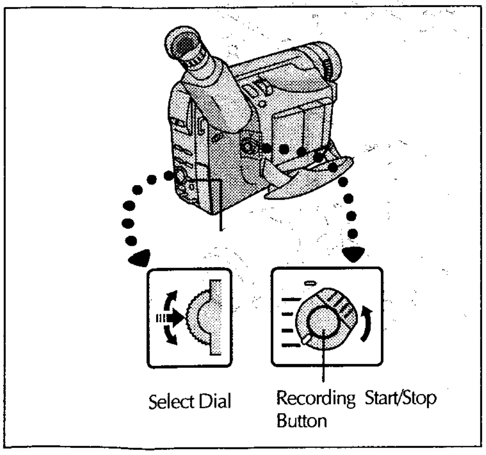
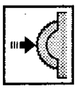
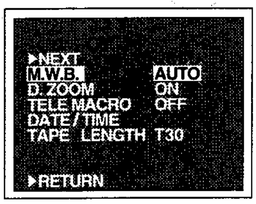


Fig. 1-10-1

1. Set the POWER switch to turn on the "PRO". Assume that the EFFECT BUTTOM is set at "FG". Press the MENU BUTTOM once. The first page of the DISPLAY appears in the viewfinder.

2. Turn the SELECT DIAL in the direction of the arrow to set the cursor at "NEXT". The second page of the DISPLAY appears in the viewfinder.

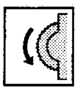


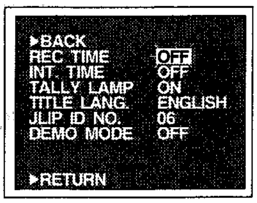


```
▶NEXT
M.W.B.          AUTO
D.ZOOM          ON
TELE MACRO      OFF
DATE/TIME
TAPE  LENGTH    T30

▶RETURN
```

Display 1





```
▶BACK
REC TIME        OFF
INT. TIME       OFF
TALLY LAMP      ON
TITLE LANG.     ENGLISH
JLIP ID NO.     06
DEMO MODE       OFF

▶RETURN
```

Display 2

See to next page

<Flow chart>

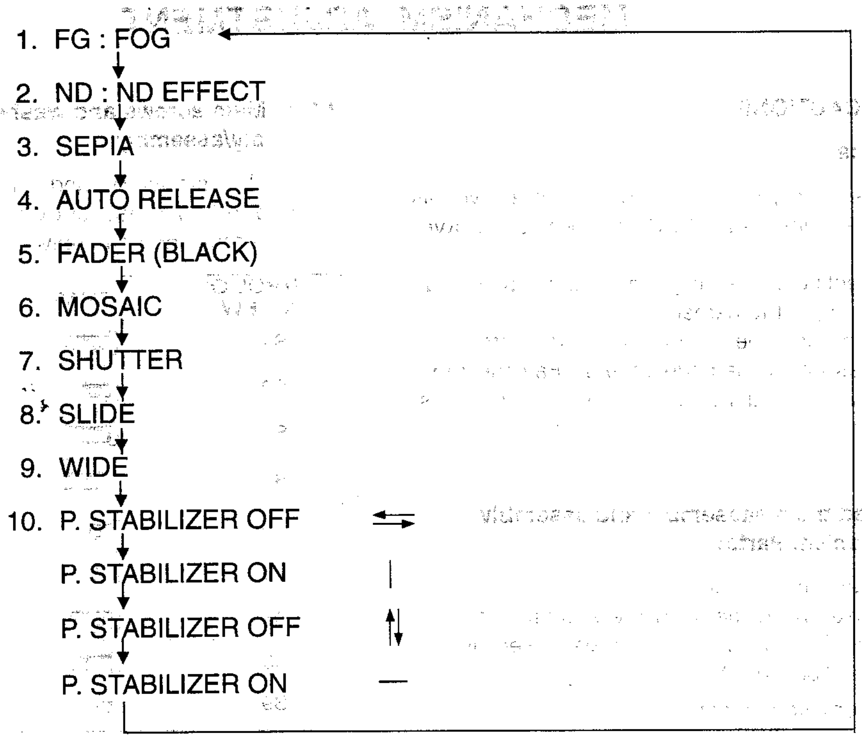
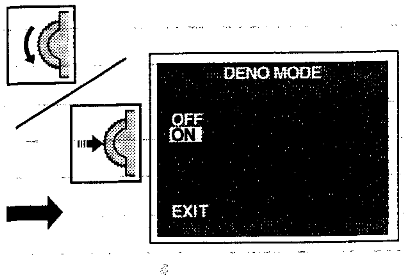

1. FG : FOG
2. ND : ND EFFECT
3. SEPIA
4. AUTO RELEASE
5. FADER (BLACK)
6. MOSAIC
7. SHUTTER
8. SLIDE
9. WIDE
10. P. STABILIZER OFF ⇆
P. STABILIZER ON |
P. STABILIZER OFF ⇅
P. STABILIZER ON —

Fig. 1-10-2

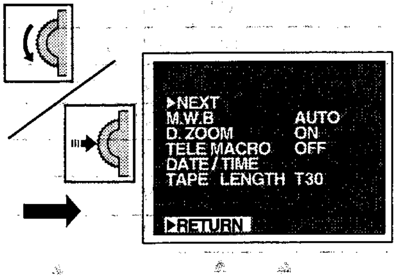
2) How to cancel the DEMONSTRATION mode.
To cancel the DEMONSTRATION mode, turn the POWER switch off ("POWER OFF").

3. Turn the SELECT DIAL in the direction of the arrow to set the cursor at "DEMO MODE". Then, press the SELECT DIAL once. The third page of the DEMO MODE appears in the viewfinder.


DENO MODE
OFF
ON
EXIT

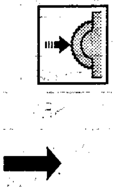
Display 3

4. Turn the SELECT DIAL in the direction of the arrow to set the cursor at "ON". Then, press the SELECT DIAL once. The fourth page of the DISPLAY appears in the viewfinder. ("DEMO MODE" is switched "ON" from "OFF" status.)


▶NEXT
M.W.B AUTO
D.ZOOM ON
TELE MACRO OFF
DATE / TIME
TAPE LENGTH T30
▶RETURN

Display 4

5. Press the SELECT DIAL once. The camcorder automatically enters the DEMONSTRATION mode and it repeats demonstration operation. While the camcorder is performing demonstration, all operations except turning on/off the POWER switch are ineffectual.



Refer to Fig. 1-10-2. While the DEMONSTRATION mode is activated, a word of "DEMONSTRATION" is appearing on the screen scrolling from right to left.

SECTION 2
MECHANISM ADJUSTMENT

2.1 SERVICE CAUTIONS

2.1.1 Precautions

1. Before disassembling/re-assembling the set as well as soldering parts, make sure to disconnect the power cable.
2. When disconnecting/connecting connectors, pay enough attention to wiring not to damage it.
3. When installing parts, be careful not to do with other parts as well as not to damage others. (Pay the most careful attention to the upper drum assy and tape transport mechanism.)

2.1.2 How to read the disassembly and assembly (For Mechanism Parts)

①: Order of steps in Procedure
When reassembling, perform the step(s) in the reverse order. These numbers are also used as the identification (location) No. of parts Figures.

②: Part to be removed or installed.

③: Location of part.
T = Top
B = Bottom

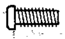
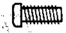
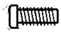
④: Fig. No. showing Procedure or Part Location.
M = Mechanism

⑤: Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped or unsoldered.
P = Spring
W = Washer
S = Screw
* = Unhook, unlock, release, unplug or unsolder.

⑥: Adjustment information for installation.
(+) = Refer to Exploded Views for Lubrication information.

2.1.3 Main screws and washers to deal with disassembly/assembly

Table 2-1-1 lists screws and washers by their symbols which correspond to those shown in figures of this section "Disassemby and Assembly".

SYMBOL OF SCREW	SHAPE	PART NUMBER
S1		YQ44457
S2		YQ44457-2
S3		SPSN1750Z
S4		YQ44304
S5		YQ44460
S6		YQ44457-3
S7		SPSH1740Z
S8		YQ44457-5
S9		QYSLSP2030D

SYMBOL OF WASHER	SHAPE	PART NUMBER
W1		PQM30017-27
W2		Q03093-835
W3		PQM30017-25
W4		LY30015-001A

Table 2-1-1

(For Mechanism Parts)

STEP/LOC. No.	PART		Fig. No.	REMOVAL	INSTALLATION
				*UNHOOK/UNLOCK /RELEASE/UNPLUG /UNSOLDER	ADJUSTMENT CONDITION NOTE
①	ROLLER BASE ASSEMBLY	T	M1	(S1)	–
②	TENSION ARM ASSEMBLY	T	M1	(P1), (W1)	–
③	REEL DISC (SUP)	T	M1	(W1), (W2)	–
④	SLANT ARM ASSEMBLY	T	M1	(W1)	–
⑤	CANCEL LEVER ASSEMBLY	T	M2	(W1)	–
⑥	EJECT LEVER ASSEMBLY	T	M2	(W1)	–
⑦	CASSETTE GUIDE (L) ASSEMBLY	T	M2	(S1)	–

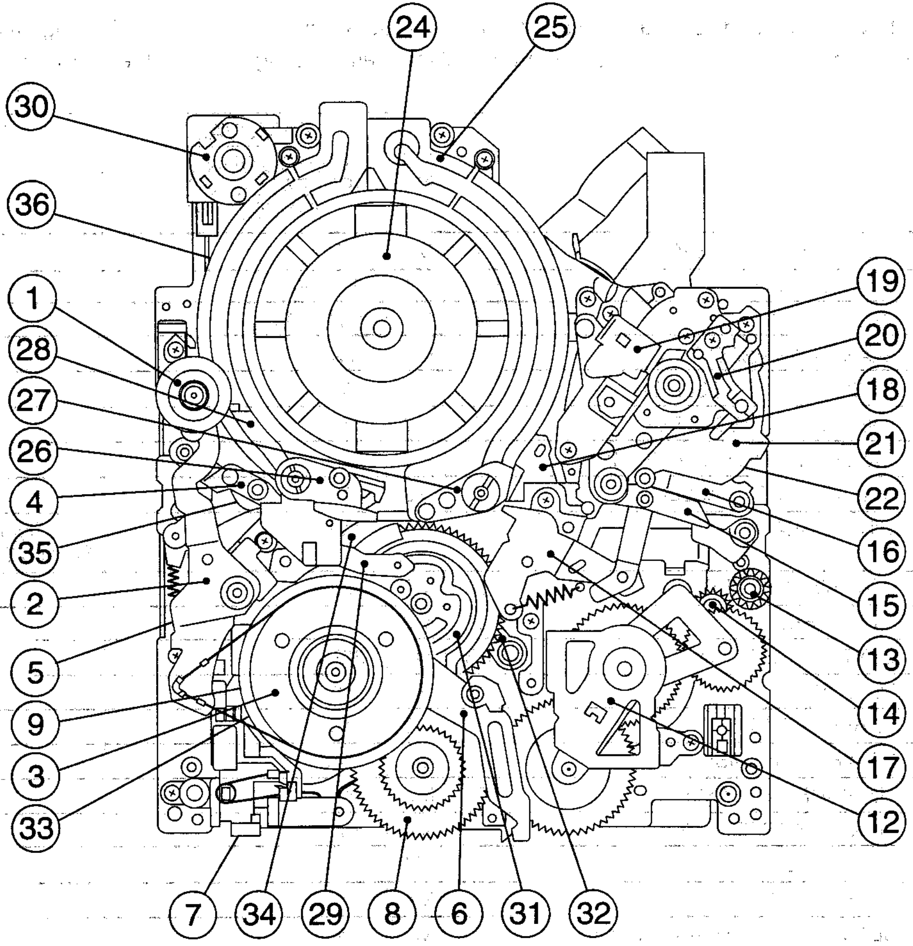
↑① ↑② ↑③ ↑④ ↑⑤ ↑⑥

2.2 DISASSEMBLY/ASSEMBLY OF MECHANISM PARTS

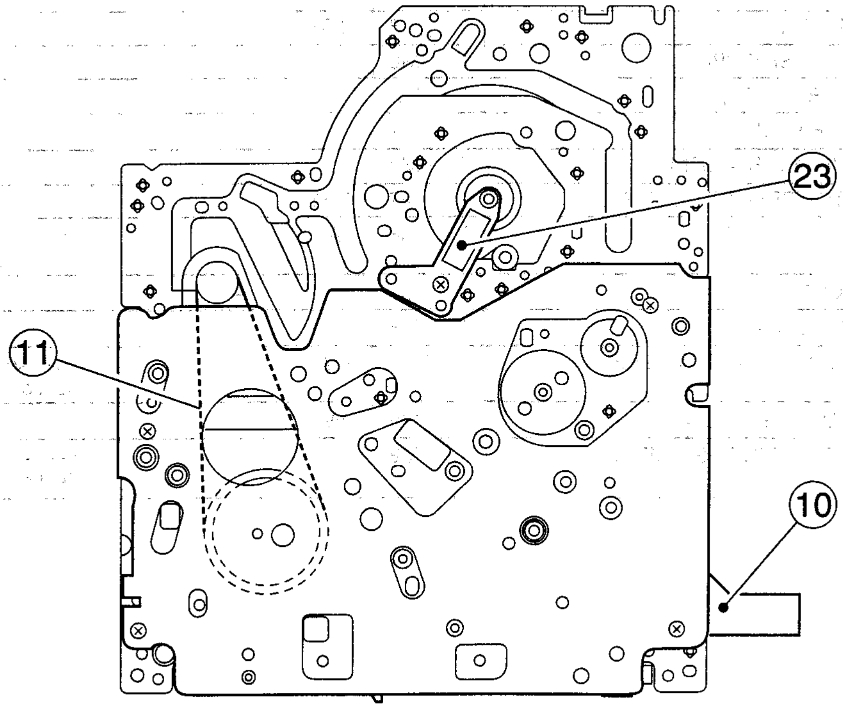
This procedure starts with the condition that the cabinet parts and deck parts. Also, all the following procedures for adjustment and parts replacement should be performed in STOP mode. When reassembling, perform the step(s) in the reverse order.

STEP/LOC. No.	PART		Fig. No.	REMOVAL	INSTALLATION
				*UNHOOK/UNLOCK /RELEASE/UNPLUG /UNSOLDER	ADJUSTMENT CONDITION NOTE
①	ROLLER BASE ASSEMBLY	T	M1	(S1)	–
②	TENSION ARM ASSEMBLY	T	M1	(P1), (W1)	–
③	REEL DISC (SUP)	T	M1	(W1), (W2)	–
④	SLANT ARM ASSEMBLY	T	M1	(W1)	–
⑤	CANCEL LEVER ASSEMBLY	T	M2	(W1)	–
⑥	EJECT LEVER ASSEMBLY	T	M2	(W1)	–
⑦	CASSETTE GUIDE (L) ASSEMBLY	T	M2	(S1)	–
⑧	SUPPLY CLUTCH ASSEMBLY	T	M2	(W1)	–
⑨	WHEEL GEAR	T	M2	(W1)	See, Adjustment procedure for Section 2.3
⑩	ROTARY ENCODER	B	M3	4(S2)	–
⑪	TIMING BELT	B	M3	–	–
⑫	CENTER PULLEY UNIT	T/B	M3	2(S2)	–
⑬	TU GEAR	T	M3	(W1)	–
⑭	BRAKE SUB GEAR	T	M3	(W1)	–
⑮	P.R ARM ASSEMBLY	T	M3	(W3)	–
⑯	TU GUIDE ARM ASSEMBLY	T	M3	(W1)	–
⑰	LINK ARM ASSEMBLY	T	M4	(W3)	–
⑱	LED GUIDE	T	M4	(S1)	–
⑲	A/C HEAD UNIT	T	M4	2(S3)	–
⑳	SLANT POLE BASE ASSEMBLY	T	M5	(S4)	–
㉑	CAP MOTOR ASSEMBLY	T	M5	3(S4)	–
㉒	MOTOR BASE	T	M5	2(S1), (S5)	–
㉓	BRUSH	B	M6	(S6)	–
㉔	DRUM FINAL	T/B	M6	2(S1), (S7), *CATCHER	–
㉕	GUIDE RAIL	T	M6	8(S8)	–
㉖	POLE BASE (SUP)	T	M6	–	–
㉗	POLE BASE (TU)	T	M6	–	–
㉘	COVER PLATE	T	M7	–	–
㉙	DRIVE LEVER ASSEMBLY	T	M7	–	–
㉚	MOTOR BRACKET ASSEMBLY	T	M7	3(S1)	–
㉛	CONTROL CAM	T	M8	(W4)	See, Adjustment procedure for Section 2.3
㉜	LINK LEVER	T	M8	–	–
㉝	MIDDLE GEAR	T	M8	–	–
㉞	LOADING GEAR(T) ASSEMBLY	T	M8	(W1)	See, Adjustment procedure for Section 2.3
㉟	LOADING GEAR(S) ASSEMBLY	T	M8	(W1)	–
㊱	LOADING RING ASSEMBLY	T	M8	4(S1)	See, Adjustment procedure for Section 2.3

TOP VIEW


24
25
30
36
1
28
27
26
4
35
2
5
9
3
33
19
20
18
21
22
16
15
13
14
17
12
7
34
29
8
6
31
32

BOTTOM VIEW



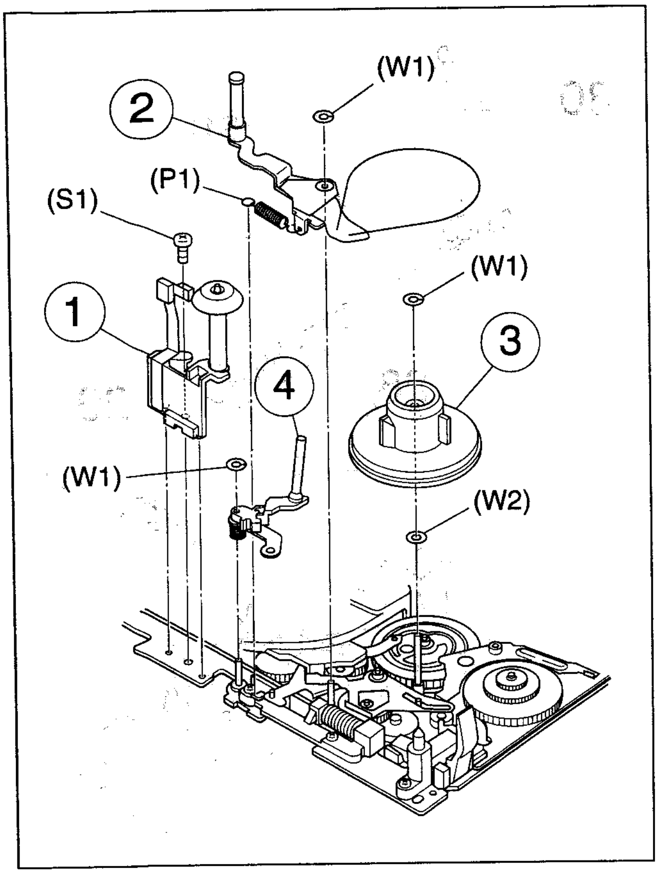

(W1)
2
(P1)
(S1)
(W1)
1
3
4
(W1)
(W2)

Fig. M1

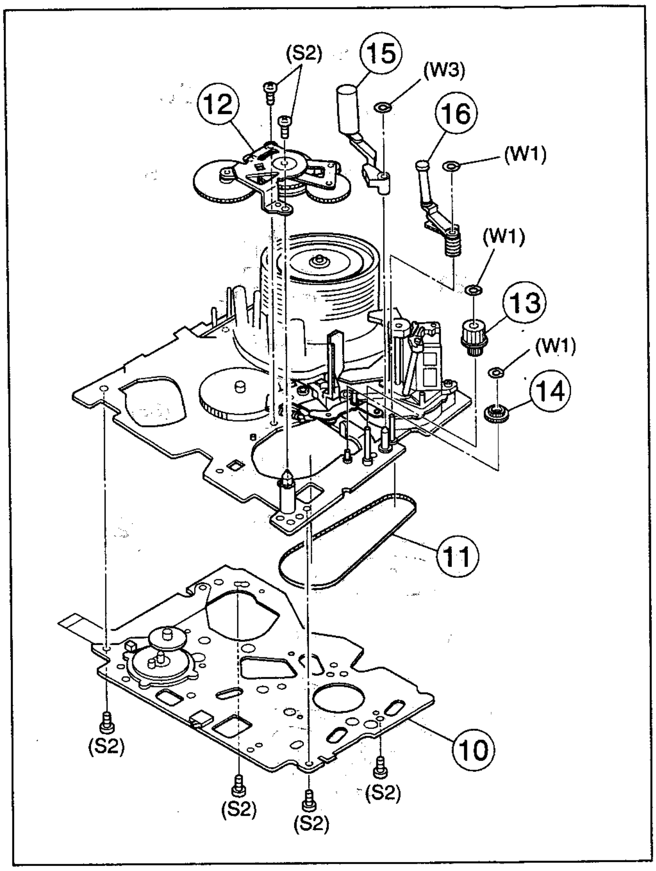

(S2)
15
(W3)
12
16
(W1)
(W1)
13
(W1)
14
11
(S2)
10
(S2)
(S2)
(S2)

Fig. M3

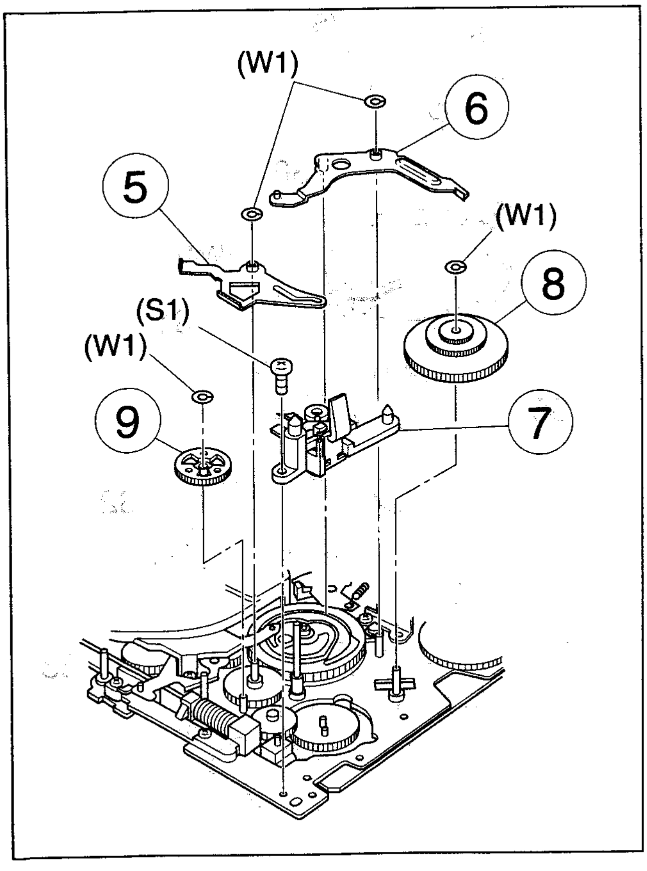

(W1)
6
5
(W1)
8
(S1)
(W1)
9
7

Fig. M2

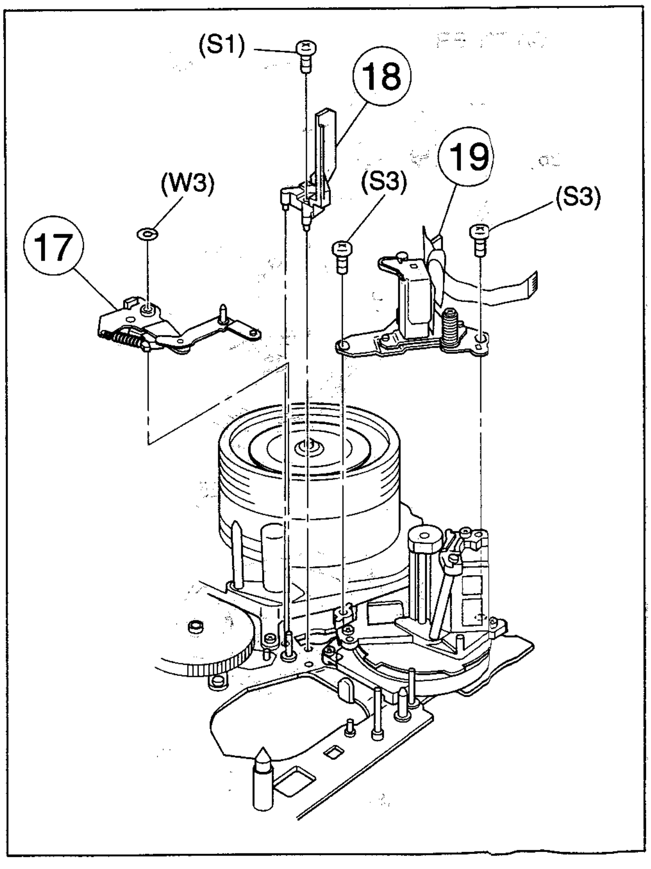

(S1)
18
19
(W3)
(S3)
(S3)
17

Fig. M4

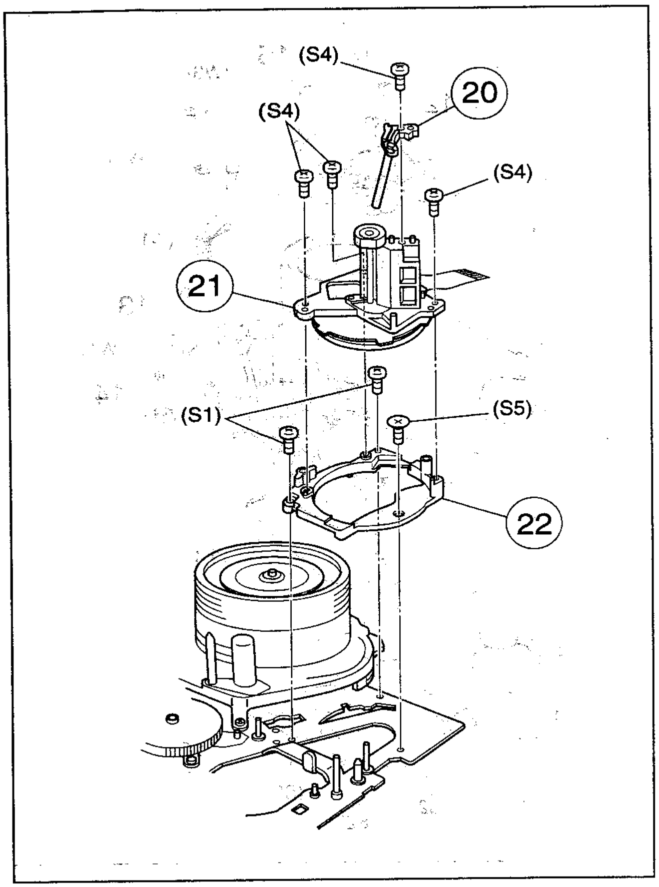

(S4)
(S4)
20
(S4)
21
(S1)
(S5)
22

Fig. M5

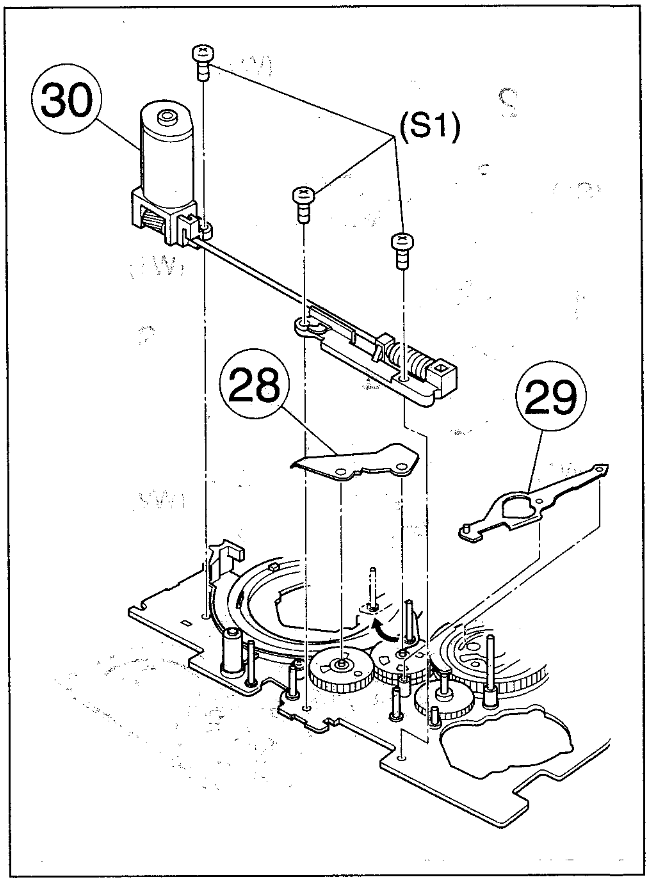


Fig. M7

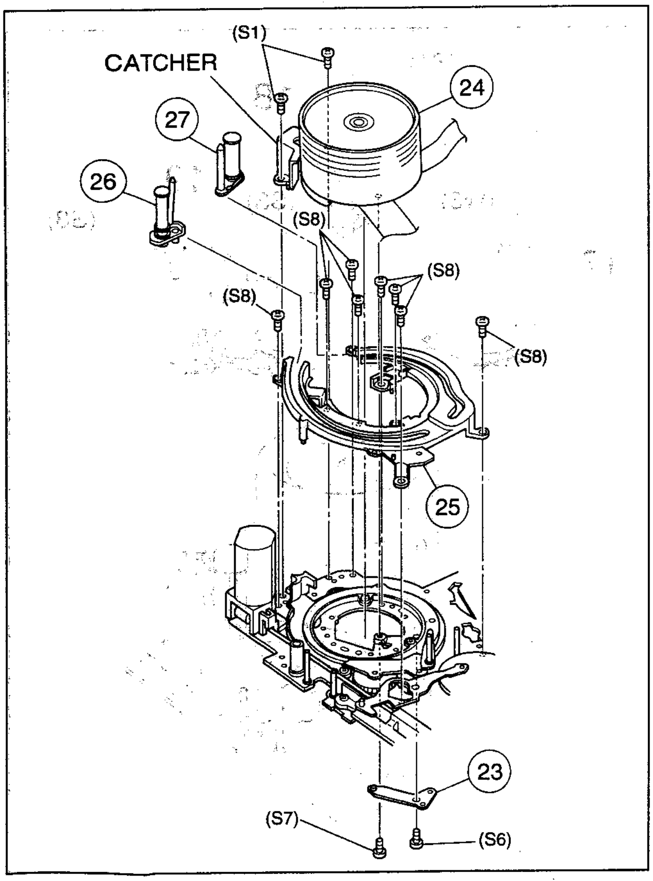

(S1)
CATCHER
24
27
26
(S8)
(S8)
(S8)
(S8)
25
23
(S7)
(S6)

Fig. M6

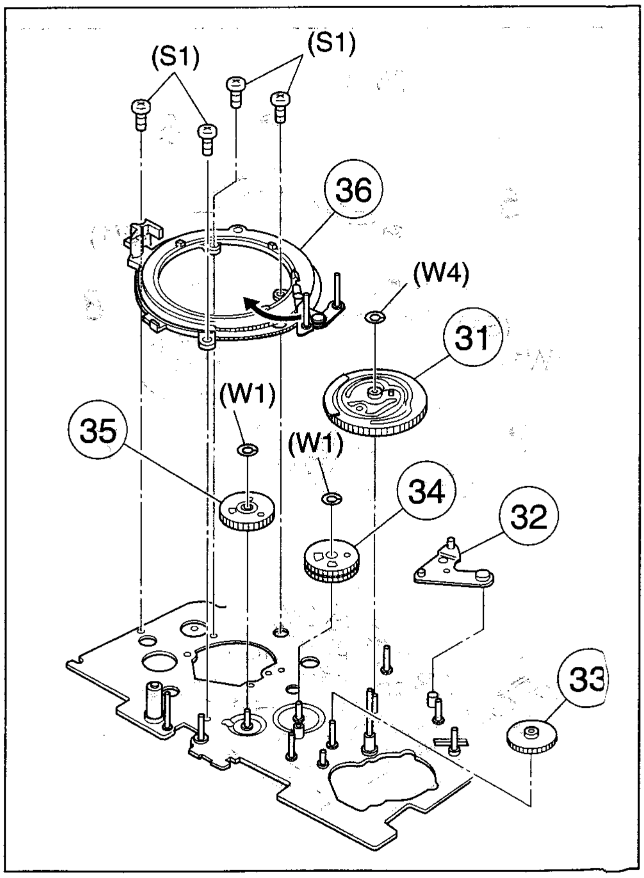
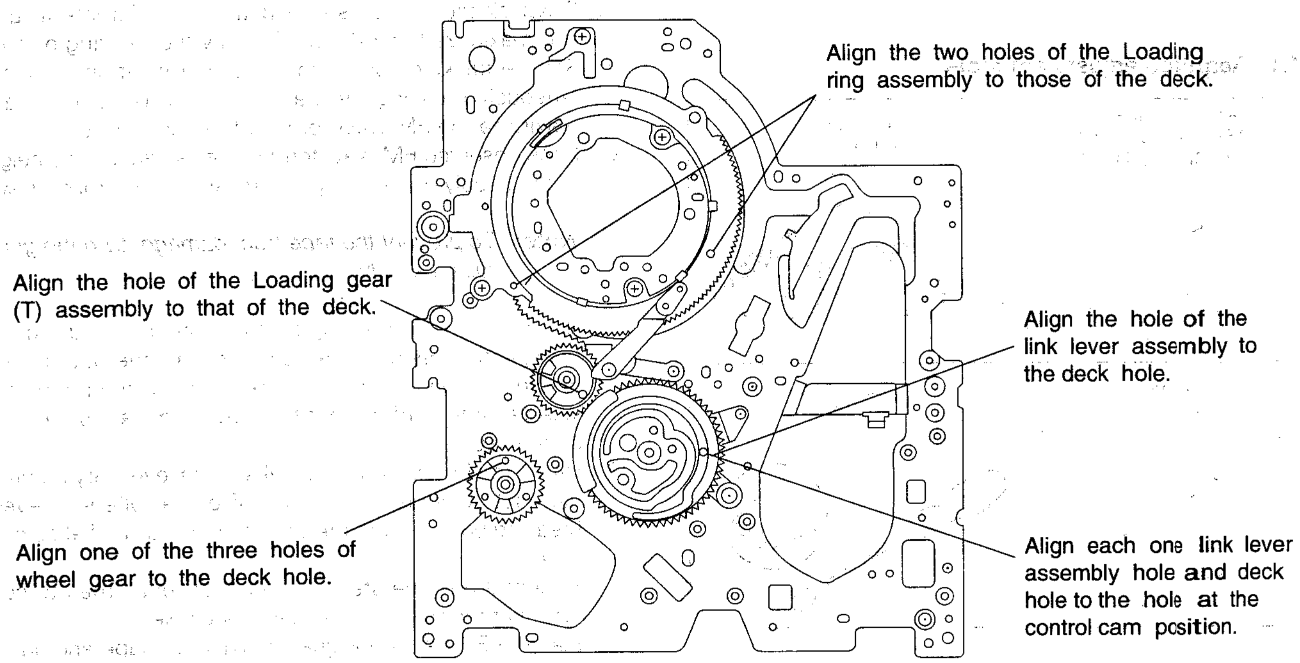

(S1)
(S1)
36
(W4)
31
(W1)
35
(W1)
34
32
33

Fig. M8

2.3 CHECKUP AND ADJUSTMENT OF MECHANISM PHASE

Note: *Pay careful attention to the installing order and phase of mechanism parts of the loading system.*


Align the two holes of the Loading ring assembly to those of the deck.

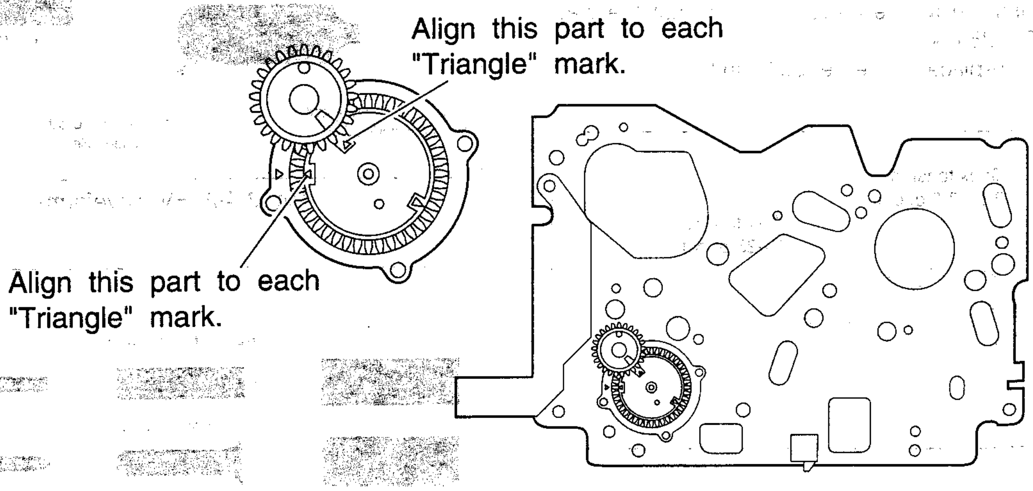
Align the hole of the Loading gear (T) assembly to that of the deck.

Align the hole of the link lever assembly to the deck hole.

Align one of the three holes of wheel gear to the deck hole.

Align each one link lever assembly hole and deck hole to the hole at the control cam position.

Fig. 2-3-1 TOP OF MAIN DECK


Align this part to each "Triangle" mark.

Align this part to each "Triangle" mark.

Fig. 2-3-2 ROTARY ENCODER

2.4 TAPE TRANSPORT ADJUSTMENT

In most cases the deck section is in need electrical adjustment, it results from replacement of worm mechanical parts or video heads. In the event of malfunction with electrical circuits, troubleshouting with the aid of proper test instruments most be done first, and then commence necessary repair, replacement and adjustment, etc.

2.4.1 Required adjustment tools

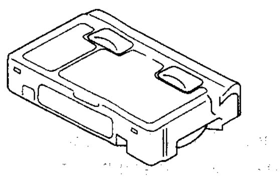
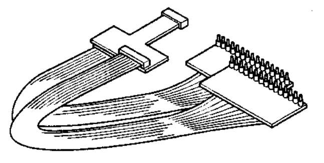
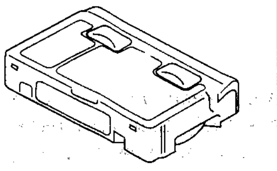
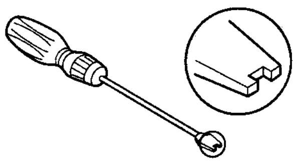
Alignment tape for SP/EP interchangeability MHP-C: SP/MHP-LC: EP	PATCH CORD YTU93082C
	
Cassette torque meter PUJ50431-2	Roller driver PTU94002-2
	

Table 2-4-1

2.4.2 Back tension

1. Set a cassette torque meter onto the deck and measure the back tension in standard REC mode to confirm that the back tension is 9.5 – 17.5 gf•cm.
2. If not, replace the tension band.
   When the value widely fluctuates in the measurement, replace the supply reel disk.
3. With the cassette torque meter, confirm that the play torque is 15 – 25 gf•cm.
   If necessary, replace the center pully unit.

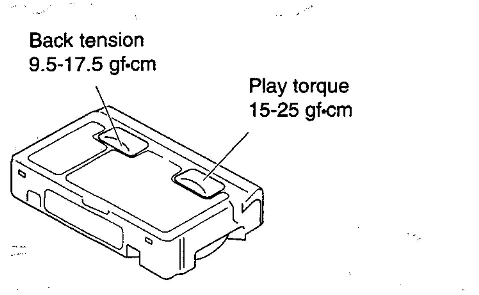


Fig. 2-4-1 Cassette torque meter

2.4.3 Tape pattern

1. Remove the COVER (JIG) and remove the LOWER CASE assembly as shwon on Fig. C4 (Page 1-5).
2. Connect the patch cord (YTU93082C) to CN25 on the MAIN board as shwon on Fig. 2-6-1 (Page 2-10).
3. Observe signal at pin 5 of CN1 (V. TP FM) with external trigger from pin 8 of CN1 (V. FF) on the patch cord.
4. Playback the SP stairstep signal of the alignment tape, and maximize the FM waveform by the tracking button.
5. Set the tracking control to the center position by simultaneously pressing the tracking (-) and (+) buttons and maximize the FM waveform by the tracking button.
6. If the observed FM waveform is not flat, adjust the height of the supply of take-up guide roller with the roller driver.

   Note: *To prevent the tape from damage, turn the guide rollers slowly.*

7. By operating the tracking button (both in + and – directions) in the manual tracking mode, vary the output level of the FM waveform from maximum to minimum and vice versa to confirm that the waveform varies nearly in a flat shape.
8. When the FM waveform breaks in the level varying process, subtly adjust the height of guide rollers at every breaking point so that the waveform varies as flat as possible.
   Repeat the above steps 6. and 7. several times to confirm that the waveform is flat as a whole.
9. Play the EP stair stepsignal of alignment tape and adjust the tracking control to maximize the FM waveform, confirm that FM waveform variation is always flat.
10. Record the signal and play it back in both of the SP and EP modes, and confirm that the FM waveform is flat in both modes.

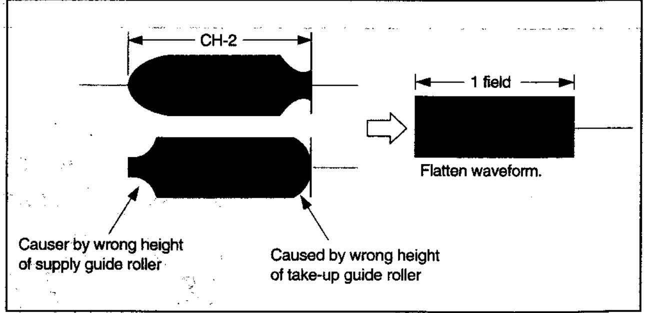

CH-2
1 field
Flatten waveform.
Causer by wrong height of supply guide roller
Caused by wrong height of take-up guide roller

Fig. 2-4-2 FM waveform-1

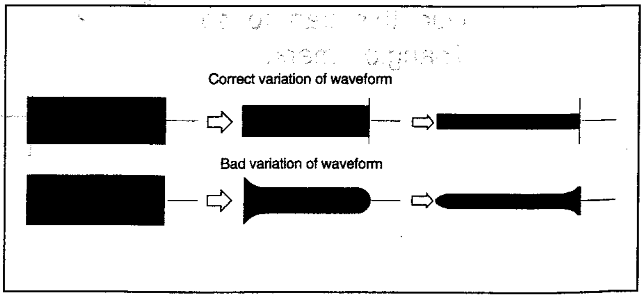


Fig. 2-4-3 FM waveform-2

11. Through the above steps, confirm that there occur no wrinkling and damage in the tape around the pinch roller and TU guide pole whenever the deck is in operation of Loading/Unloading, Search Rewind and at mode change from Search Rewind to play mode. If wrinkling or damage in the tape occurs around the TU guide pole, adjust the angle (slant) of the A/C head to the tape. So that the tape normally runs along the lower flange of the guide pole.

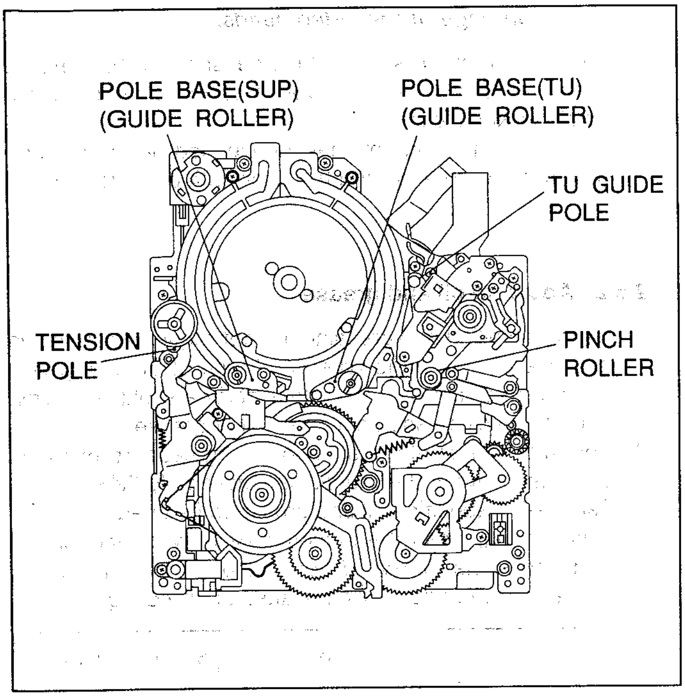


Fig. 2-4-4 Tape transport system

2.4.4 A/CTL head height & azimuth

1. Connect the patch cord (YTU93082C) to CN25 on the MAIN board.
2. Connect the channel-1 scope probe to the audio output and connect the channel-2 scope probe to CN1 pin 10 on the patch cord.
3. Playback the SP 7 kHz segment of the alignment tape.
4. Set the tracking to its center range by pressing the (+) and (–) tracking controls simultaneously.
5. Adjust screws Ⓐ, Ⓑ and Ⓒ approximately 45 degrees in the same direction to obtain maximum audio output and CTL signal levels.
6. As a final fine adjustment, adjust screw Ⓑ for minimum signal level fluctuation and screw Ⓒ for maximum output signal level.

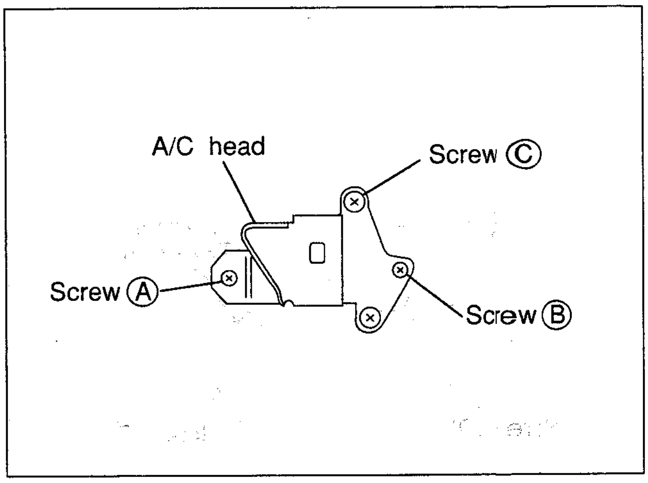


Fig. 2-4-5 A/C head

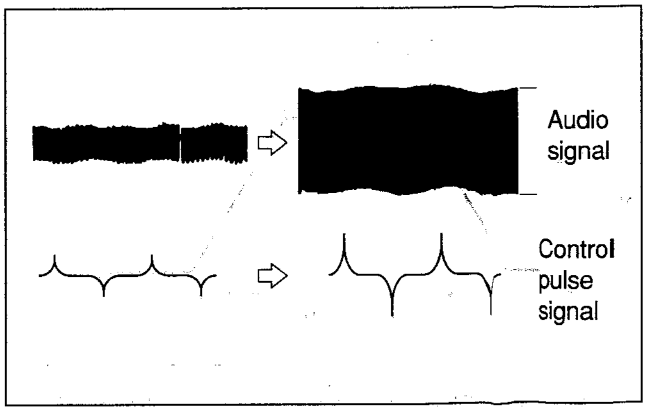


Fig. 2-4-6 Audio and CTL signal

2.4.5 Phase of control head (X value)

1. Connect the patch cord (YTU93082C) to CN25 on the MAIN board.
2. Play back the SP stairstep signal of the alignment tape and observe signal at pin 5 of CN1 (V.TP FM) with external trigger from pin 8 of CN1 (V.FF) on the patch cord.
3. Operate the tracking button in the center and manual tracking mode by pressing the tracking (+) and (–) buttons and confirm that the FM output level is maximum at the center position as shown in Fig. 2-4-8.
4. If necessary, slightly loosen the setscrews Ⓓ and Ⓔ and insert the Tweezers into the notch and guide hole to move the A/C head fully in the direction of the capstan to the extent.
5. Gradually move the A/C head toward the drum to find the position where the FM output level maximum for the first time (a' – b' in Fig. 2-4-8).
6. Fine adjust the phase of the A/C head and tighten the screwsⒹ and Ⓔ at the point a.

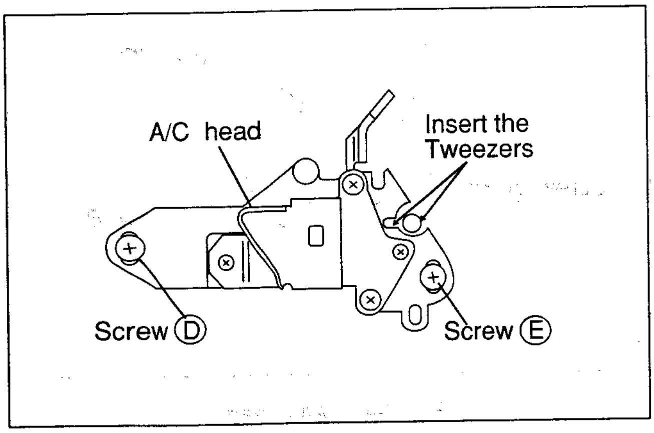


Fig. 2-4-7 Phase of control head

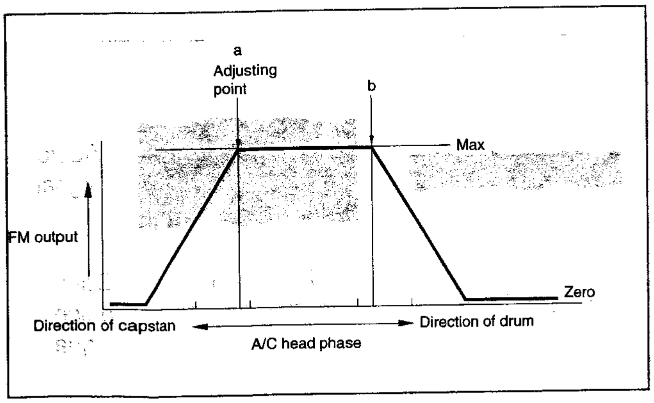


Fig. 2-4-8 Phase adjustment point of control head

2.5 REMARKS

2.5.1 Cleaning

1. For cleaning of the upper drum (particularly video heads), use fine-woven cotton cloth or Kimwipe with alcohol soaks through. Do not move the cloth but turn the upper drum counterclockwise.

   Note: *Make sure not to move the cloth in the vertical direction to the video head, since it may cause damage of the video heads.*

2. For cleaning of parts of the tape transport system except the upper drum, use fine-woven cotton cloth or cotton swab soaked alcohol.
3. After cleaning, confirm that the cleaned parts are completely dry before loading the deck with cassette tape.

2.5.2 Applying oil and grease

1. Periodical oiling and greasing are not required but should be done to new parts when replacing. If oil and grease on the other parts of the other party are old and dirty, wipe them clean and apply new oil or grease.
2. For parts and points to apply oil and grease, refer to the exploded view of the mechanism assembly (M3). Table 2-5-1 specifies oil and grease to be used.
3. When oiling, clean the objective parts with alcohol first and apply one or two drop(s) of oil. Too much oiling causes rotary parts to slip because of oil leakage.

Classification	Name	Symbol in drawing
Grease	KYODO-SH-P	AA
Oil	YTU94027	BB

Table 2-5-1 Specific oil and grease to be used

2.5.3 Checkup

After replacement of the supply reel disk and tension band, make sure to inspect back tension according to the adjustment procedure of MECHANISM ADJUSTMENT section.

2.6 PATCH CORD (YTU93082C) CONNECTION

Remove one screw (1) first and the cover (JIG) next.

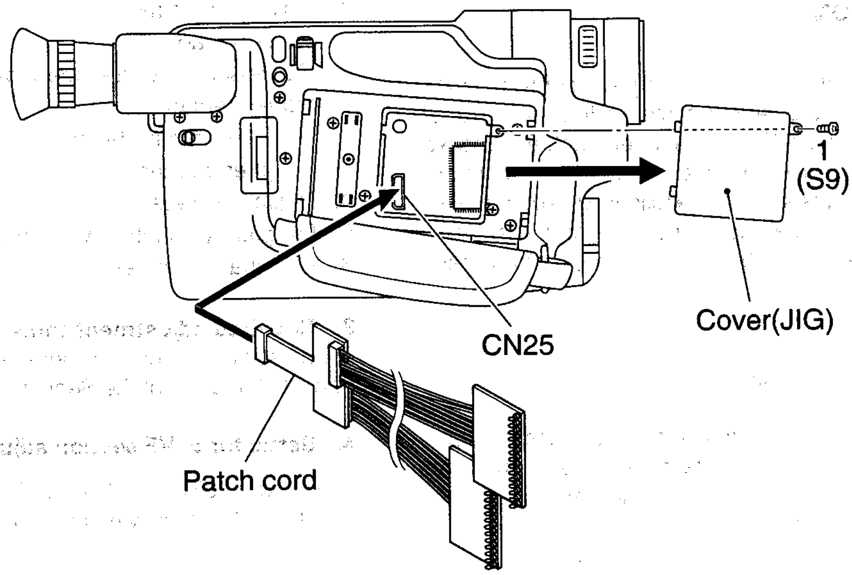

1
(S9)
Cover(JIG)
CN25
Patch cord

Fig. 2-6-1 Patch cord connection

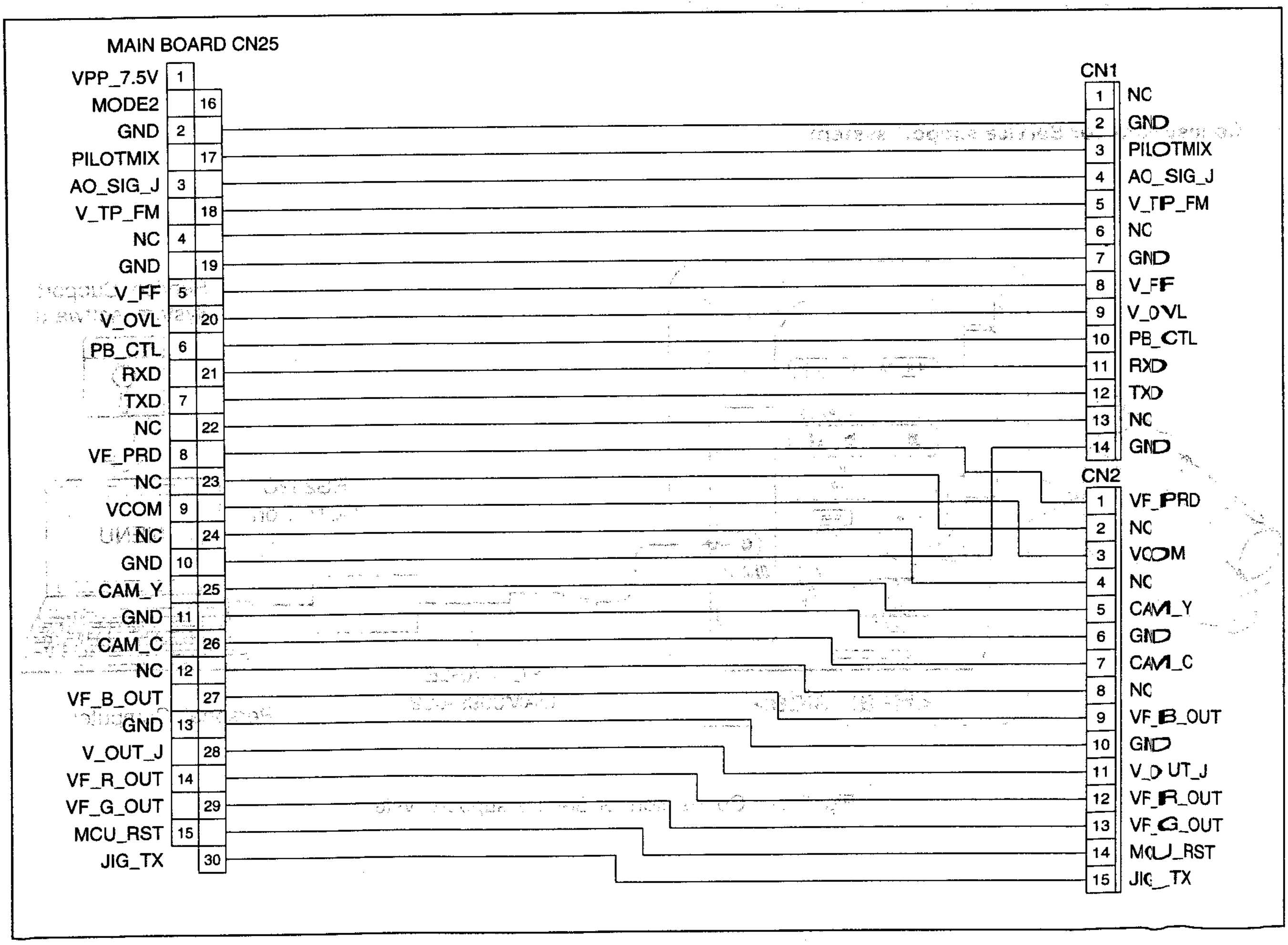

MAIN BOARD CN25
VPP_7.5V 1
MODE2 16
GND 2
PILOTMIX 17
AO_SIG_J 3
V_TP_FM 18
NC 4
GND 19
V_FF 5
V_OVL 20
PB_CTL 6
RXD 21
TXD 7
NC 22
VF_PRD 8
NC 23
VCOM 9
NC 24
GND 10
CAM_Y 25
GND 11
CAM_C 26
NC 12
VF_B_OUT 27
GND 13
V_OUT_J 28
VF_R_OUT 14
VF_G_OUT 29
MCU_RST 15
JIG_TX 30
CN1
1 NC
2 GND
3 PILOTMIX
4 AO_SIG_J
5 V_TP_FM
6 NC
7 GND
8 V_FF
9 V_OVL
10 PB_CTL
11 RXD
12 TXD
13 NC
14 GND
CN2
1 VF_PRD
2 NC
3 VCOM
4 NC
5 CAM_Y
6 GND
7 CAM_C
8 NC
9 VF_B_OUT
10 GND
11 V_OUT_J
12 VF_R_OUT
13 VF_G_OUT
14 MCU_RST
15 JIG_TX

Fig. 2-6-2 Patch cord schematic diagram

SECTION 3
ELECTRICAL ADJUSTMENT

3.1 ELECTRICAL ADJUSTMENT

3.1.1 PREPARATION

1. Precaution

This model does not contain adjustment controls (VR). General deck system and camera system adjustment are not required. However, if MAIN board need replacement, please use original E²PROM on to new board. Then adjustment are not required. And if parts such as the following need replacement, special computerized adjustment are required (Refer to sec. 3.1.1-4). Please contact to JVC Service for detaile information.

- OP block
- COLOR E.VF
- E²PROM (IC105 of MAIN board)

In the event of malfunction with electrical circuits, troubleshooting with the aid of proper test instruments most be done first, and then commence necessary repair, replacement and adjustment, etc.

1. In case of wiring to chip test points for measurement, use IC clips, etc. to avoid any stress.
2. Since connectors are fragile, carefully handle them in disconnecting and connecting.
3. Shortcircuit between operation un it and DECK chassis.

2. Required test equipment

1. Color TV monitor.
2. AC power adapter
3. Oscilloscope (dual-trace type, observable 100 MHz or higher frequency)
   * It is recommended to use one observable 300 MHz or higher frequency.
4. Digital voltmeter
5. Frequency counter (with threshold level adjuster)
6. Personal computer

3. Required adjustment tools

For detsails of special jigs necessary for adjustment, refer to page 1-2 and 1-3 of the Section 1.

4. Setup for E. VF section adjustment

Referring to "SEC. 1 DISASSEMBLY" and connect the E. VF FPC to CN11 of the MAIN board.

NOTE:

- *This adjustment falls into a special adjustment that requires a personal computer. For details, refer to "3.1.1 Preparation".*

5. Connections for Service support system

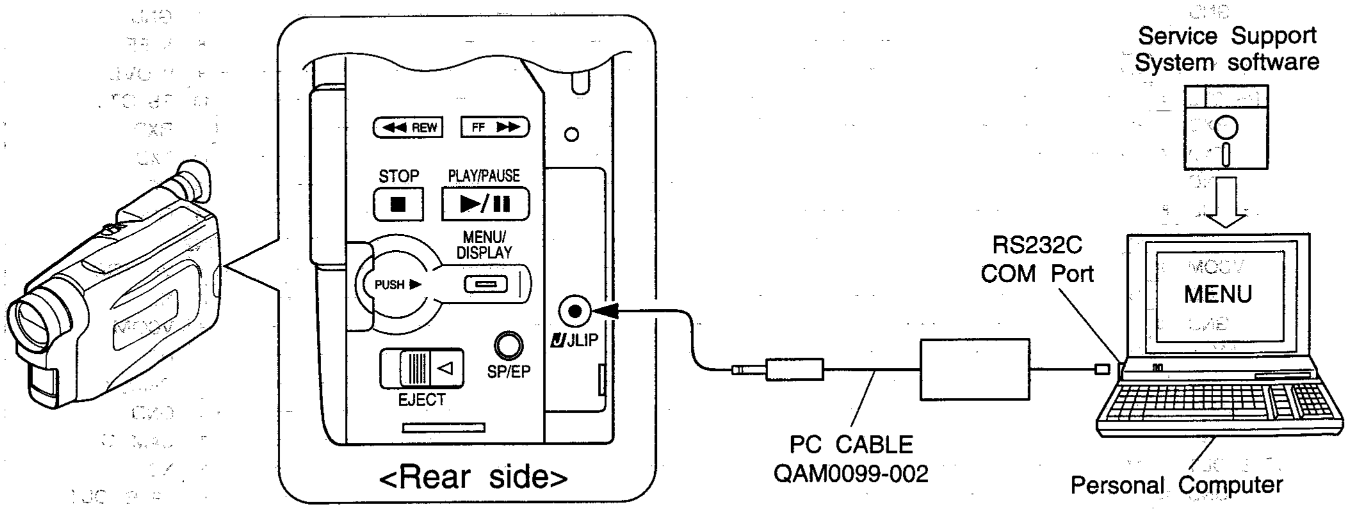


Fig. 3-1-1 Connection for Service support system

■ FUSE LOCATION FOR MAIN

MAIN PWB

-FOIL SIDE-

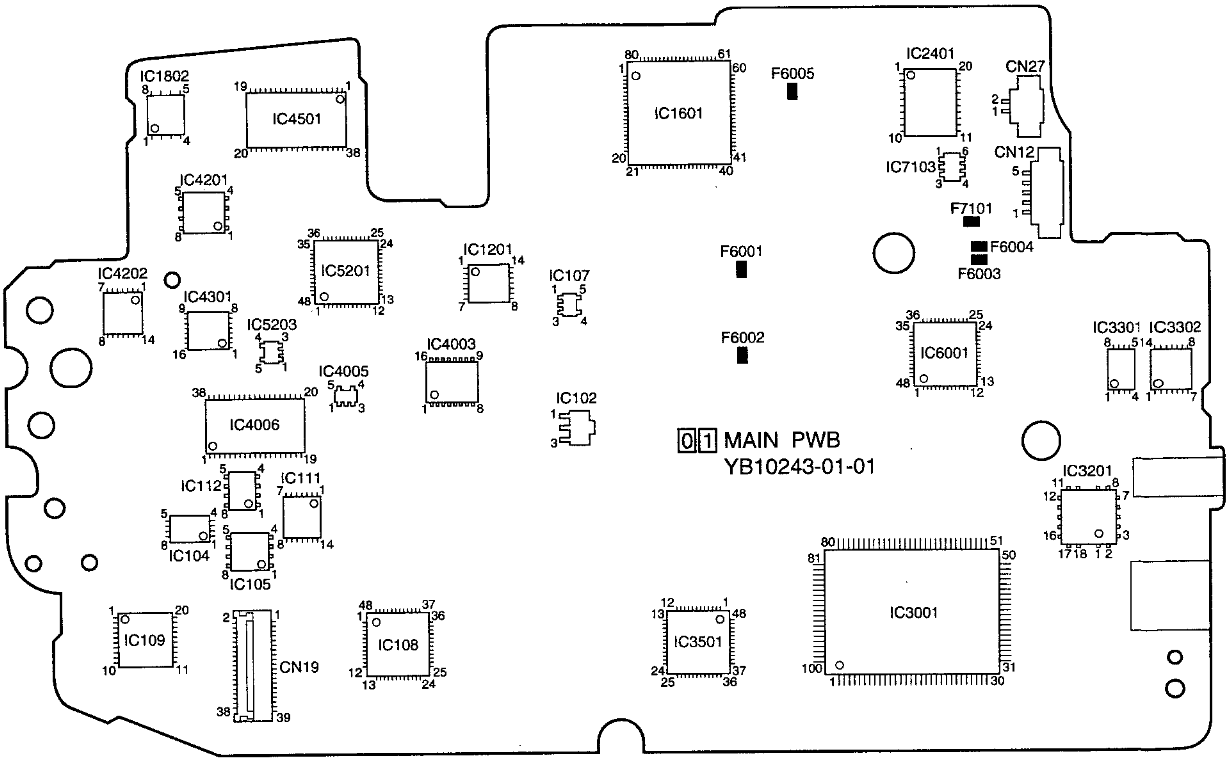

IC1802
IC4501
IC4201
IC4202
IC4301
IC5203
IC5201
IC1201
IC107
IC4003
IC4005
IC4006
IC102
IC112
IC111
IC104
IC105
IC109
CN19
IC108
IC3501
IC3001
IC1601
F6005
IC2401
CN27
CN12
IC7103
F7101
F6004
F6003
F6001
F6002
IC6001
IC3301
IC3302
IC3201
01 MAIN PWB
YB10243-01-01

Fig. 3-1-2 FUSE location for MAIN board assembly (FOIL side)

SECTION 4
CHARTS AND DIAGRAMS

NOTES OF SCHEMATIC DIAGRAM

Safety precautions
The Components identified by the symbol ⚠ are critical for safety. For continued safety, replace safety critical components only with manufacturer's recommended parts.

1. Units of components on the schematic diagram

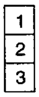
Unless otherwise specified.

1) All resistance values are in ohm, 1/6 W, 1/8 W (refer to parts list).
   Chip resistors are 1/16 W.
   K: KΩ (1000Ω), M: MΩ (1000KΩ)
2) All capacitance values are in µF, (P: PF).
3) All inductance values are in µH, (m: mH).
4) All diodes are 1SS133, MA165 or IN4148M (refer to parts list).

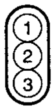
2. Indications of control voltage

AUX : Active at high
$\overline{\text{AUX}}$ or AUX(L) : Active at low

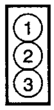
3. Interpreting Connector indications



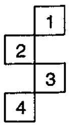
Removable connector



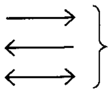
Wire soldered directly on board



Non-removable Board connector



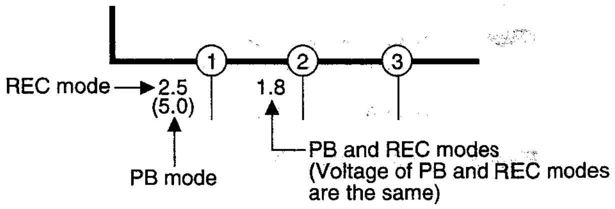
Board to Board



Connected pattern on board
The arrows indicate signal path

4. Voltage measurement

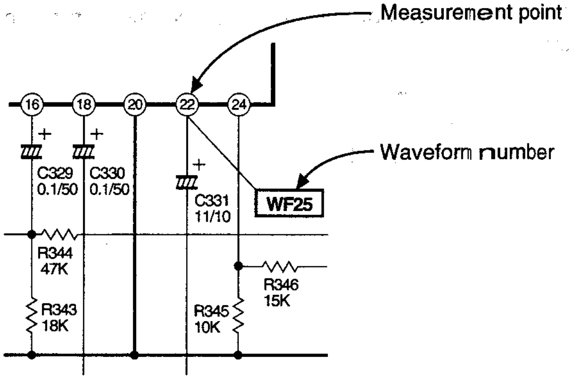
1) Video circuits
   REC : Colour bar signal in SP mode, normal VHS mode
   PB : Alignment tape, colour bar SP mode, normal VHS mode
   — : Unmeasurable or unnecessary to measure
2) Audio circuits
   REC : 1KHz, –8 dBs sine wave signal in SP mode, Normal VHS mode
   PB : REC then playback it
3) Movie Camera circuits
   Measured using a correctly illuminated gray scale or colour bar test charts in the E-E mode
4) Indication on schematic diagram
   Voltage Indications for REC and PB mode on the schematic diagram are as shown below.


①
②
③
REC mode
2.5
(5.0)
1.8
PB mode
PB and REC modes
(Voltage of PB and REC modes are the same)

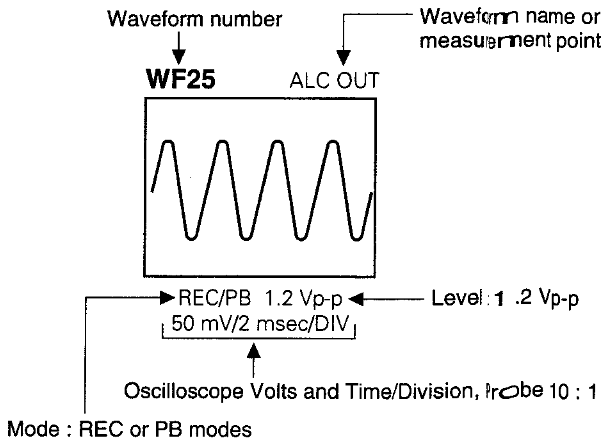
Note: If the voltages are not indicated on the schematic diagram, refer to the voltage charts.

5. Waveform measurement

1) Video circuits
   REC : Colour bar signal in SP mode, normal VHS mode
   PB : Alignment tape, colour bar SP mode, normal VHS mode
2) Audio circuits
   REC : 1KHz, –8 dBs sine wave signal in SP mode, normal VHS mode
   PB : REC then playback it
3) Movie Camera circuits
   Measured using a correctly illuminated gray scale or colour bar test chatrs in the E-E mode
4) Indication on schematic diagram
   Waveform indications on the schematic diagram are as shown below.


Measurement point
16
18
20
22
24
C329
0.1/50
C330
0.1/50
C331
11/10
WF25
Waveform number
R344
47K
R343
18K
R345
10K
R346
15K

5) Waveform indications


Waveform number
Waveform name or measurement point
WF25
ALC OUT
REC/PB 1.2 Vp-p
Level : 1 .2 Vp-p
50 mV/2 msec/DIV
Oscilloscope Volts and Time/Division, Probe 10 : 1
Mode : REC or PB modes

6. Signal path Symbols

The arrows indicate the signal path as follows.

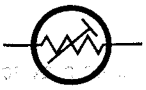
⇨	Playback signal path
▭▶	Playback and recording signal path
➡	Recording signal path (including E-E signal path)
⇨▷	Capstan servo path
➡▶	Drum servo path

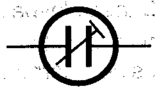
(Example)

⇨ R-Y	Playback R-Y signal path
➡ Y	Recording Y signal path

7. Indication of the parts for adjustments

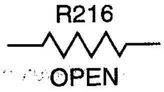
The parts for the adjustments are surrounded with the circle as shown below.





8. Indication of the parts not mounted on the circuit board

"OPEN" is indicated by the parts not mounted on the circuit board.



CIRCUIT BOARD NOTES

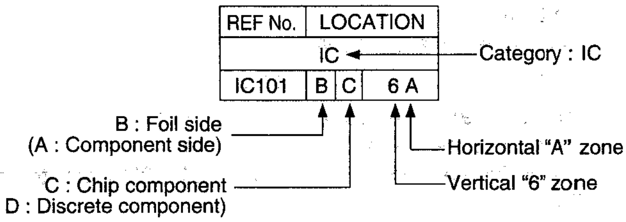
1. Foil and Component sides

1) Foil side (B side) :
Parts on the foil side seen from foil face (pattern face) are indicated.

2) Component side (A side) :
Parts on the component side seen from component face (parts face) indicated.

2. Parts location guides

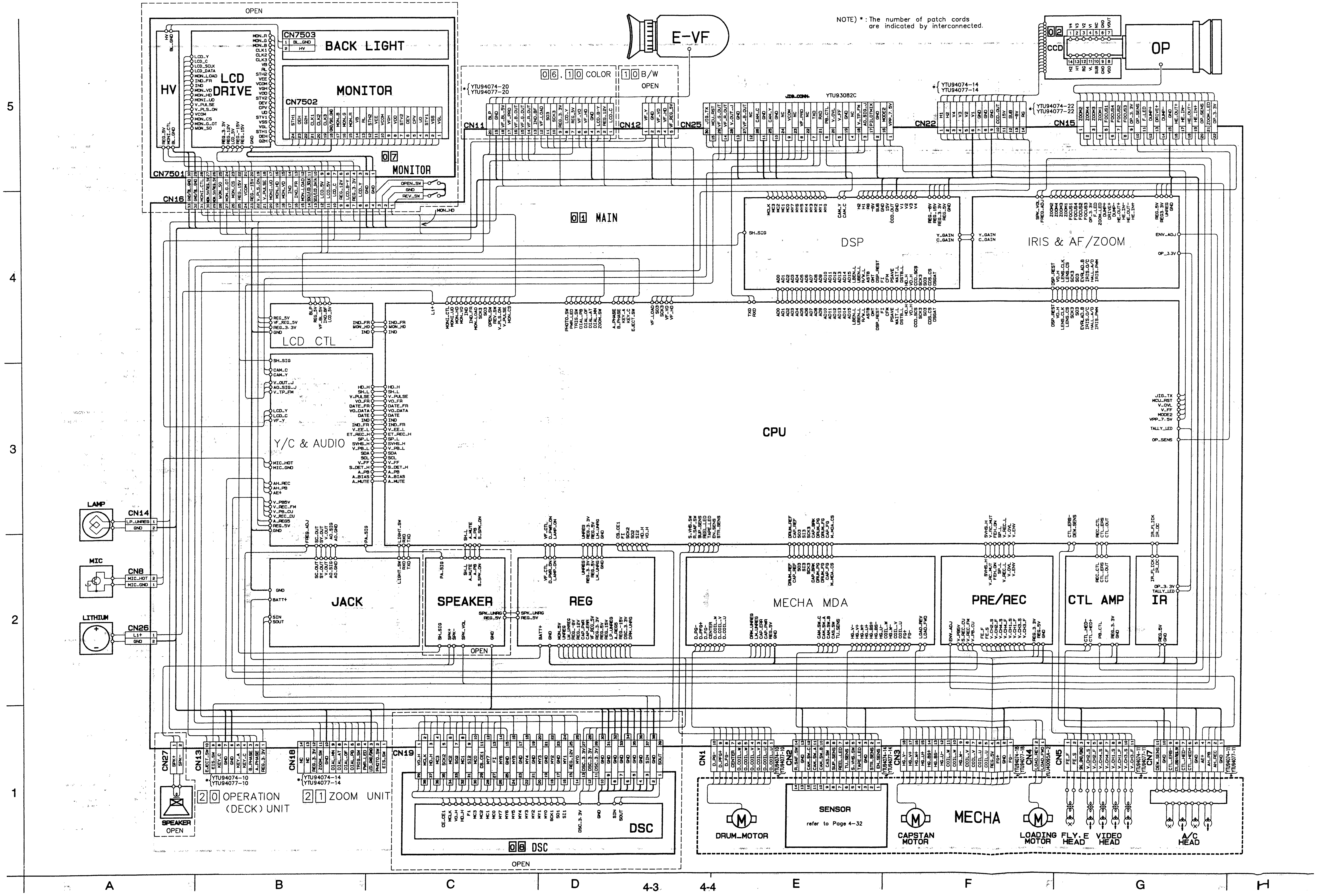
Parts location are indicated by guide scale on the circuit board.


REF No.
LOCATION
IC
Category : IC
IC101
B
C
6 A
B : Foil side
(A : Component side)
C : Chip component
D : Discrete component)
Horizontal "A" zone
Vertical "6" zone

Note:

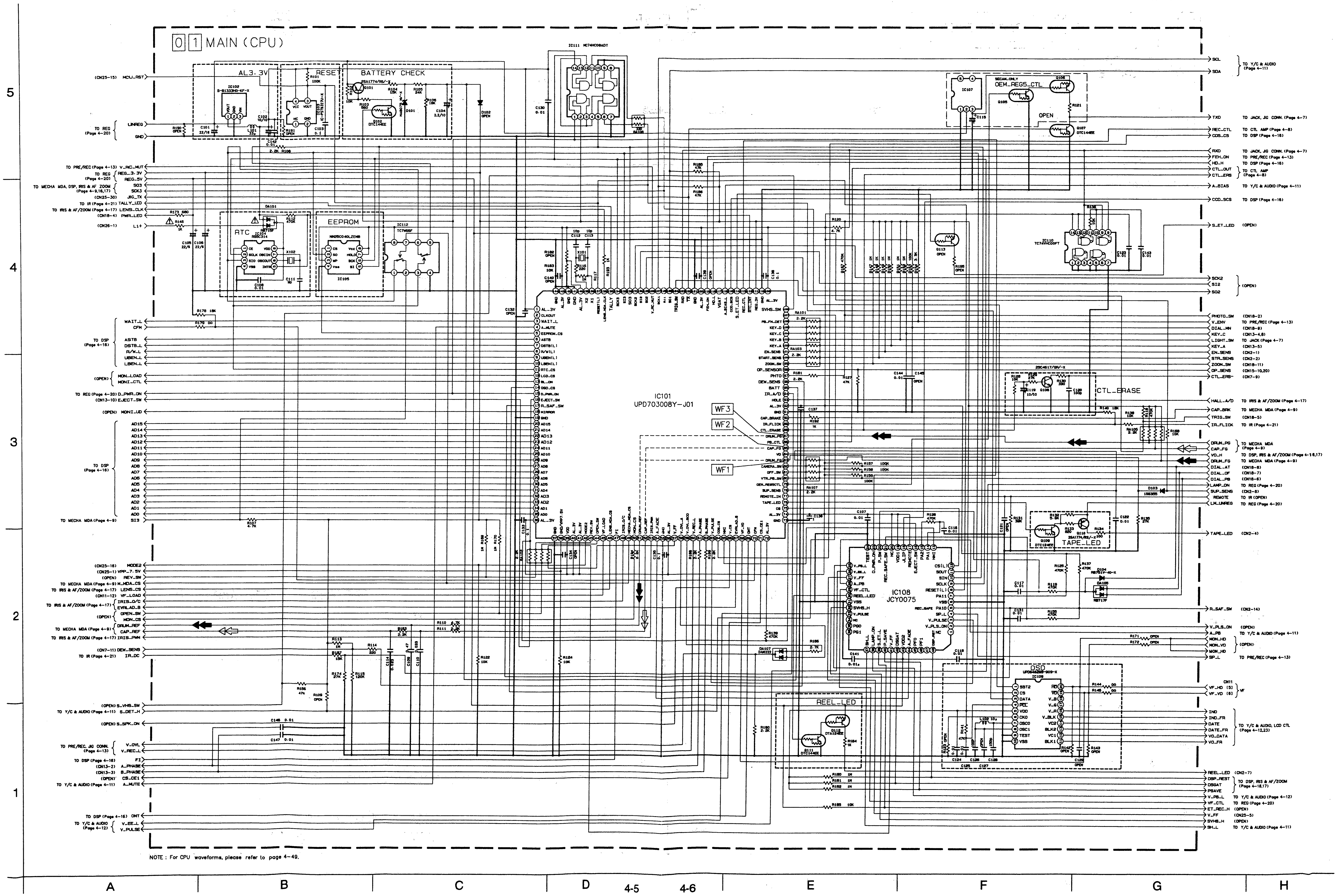
For general information in service manual, please refer to the Service Manual of GENERAL INFORMATION Edition 4 No. 82054D (January 1994).

4.1 BOARD INTERCONNECTIONS



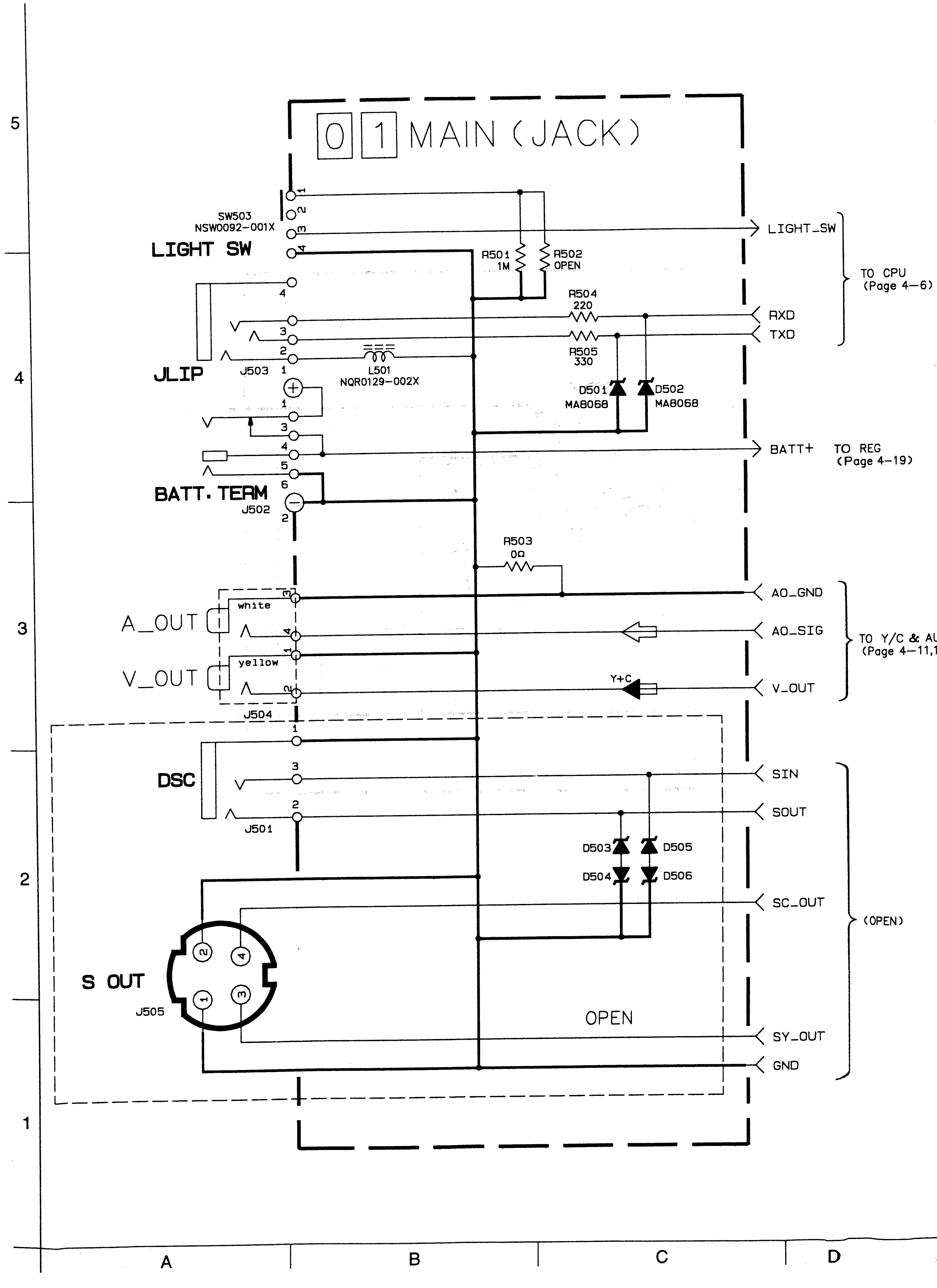
NOTE) * : The number of patch cords are indicated by interconnected.
OPEN
CN7503
BACK LIGHT
HV
LCD DRIVE
MONITOR
CN7502
CN7501
07 MONITOR
CN16
E-VF
06, 10 COLOR
10 B/W
OPEN
CN11
CN12
CN25
YTU93082C
CN22
CCD
OP
CN15
01 MAIN
DSP
IRIS & AF/ZOOM
LCD CTL
Y/C & AUDIO
CPU
LAMP
CN14
MIC
CN8
LITHIUM
CN26
JACK
SPEAKER
REG
MECHA MDA
PRE/REC
CTL AMP
IR
CN27
SPEAKER
OPEN
CN13
20 OPERATION (DECK) UNIT
CN18
21 ZOOM UNIT
CN19
DSC
06 DSC
OPEN
CN1
CN2
CN3
CN4
CN5
CN7
DRUM_MOTOR
SENSOR
refer to Page 4-32
CAPSTAN MOTOR
MECHA
LOADING MOTOR
FLY.E HEAD
VIDEO HEAD
A/C HEAD
1
2
3
4
5
A
B
C
D
E
F
G
H

4.2 CPU SCHEMATIC DIAGRAM

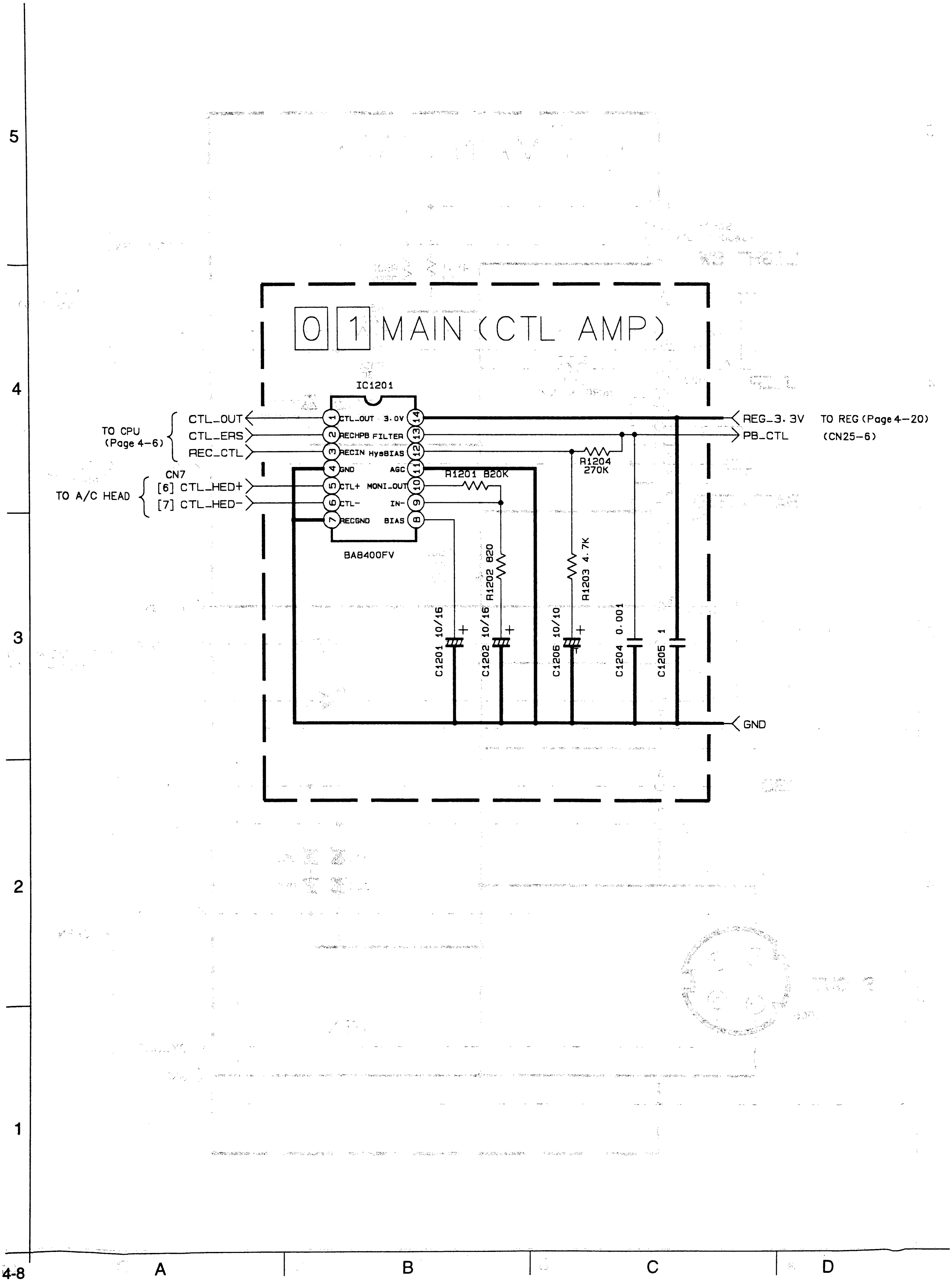

01 MAIN (CPU)
AL3.3V
RESET
BATTERY CHECK
IC102 S-81333HG-KF-X
IC103 S-80827AN
IC111 MC74HC08ADT
IC107
OEM_REG5_CTL
SECAM ONLY
OPEN
RTC
IC104 RS5C314
EEPROM
IC105
IC112 TC7W66F
IC101
UPD703008Y-J01
WF3
WF2
WF1
CTL_ERASE
IC110 TC74VHC00FT
IC108
JCY0075
TAPE_LED
OSD
IC109
REEL_LED
SCL
SDA
TXD
REC_CTL
CDS_CS
RXD
CCD_SCS
S_ET_LED
TAPE_LED
R_SAF_SW
MCU_RST
UNREG
GND
TO Y/C & AUDIO (Page 4-11)
TO DSP (Page 4-16)
TO MECHA MDA (Page 4-9)
TO IRIS & AF/ZOOM (Page 4-17)
TO REG (Page 4-20)
TO PRE/REC (Page 4-13)
TO JACK, JIG CONN. (Page 4-7)
TO CTL AMP (Page 4-8)
A
B
C
D
E
F
G
H
1
2
3
4
5

NOTE : For CPU waveforms, please refer to page 4-49.

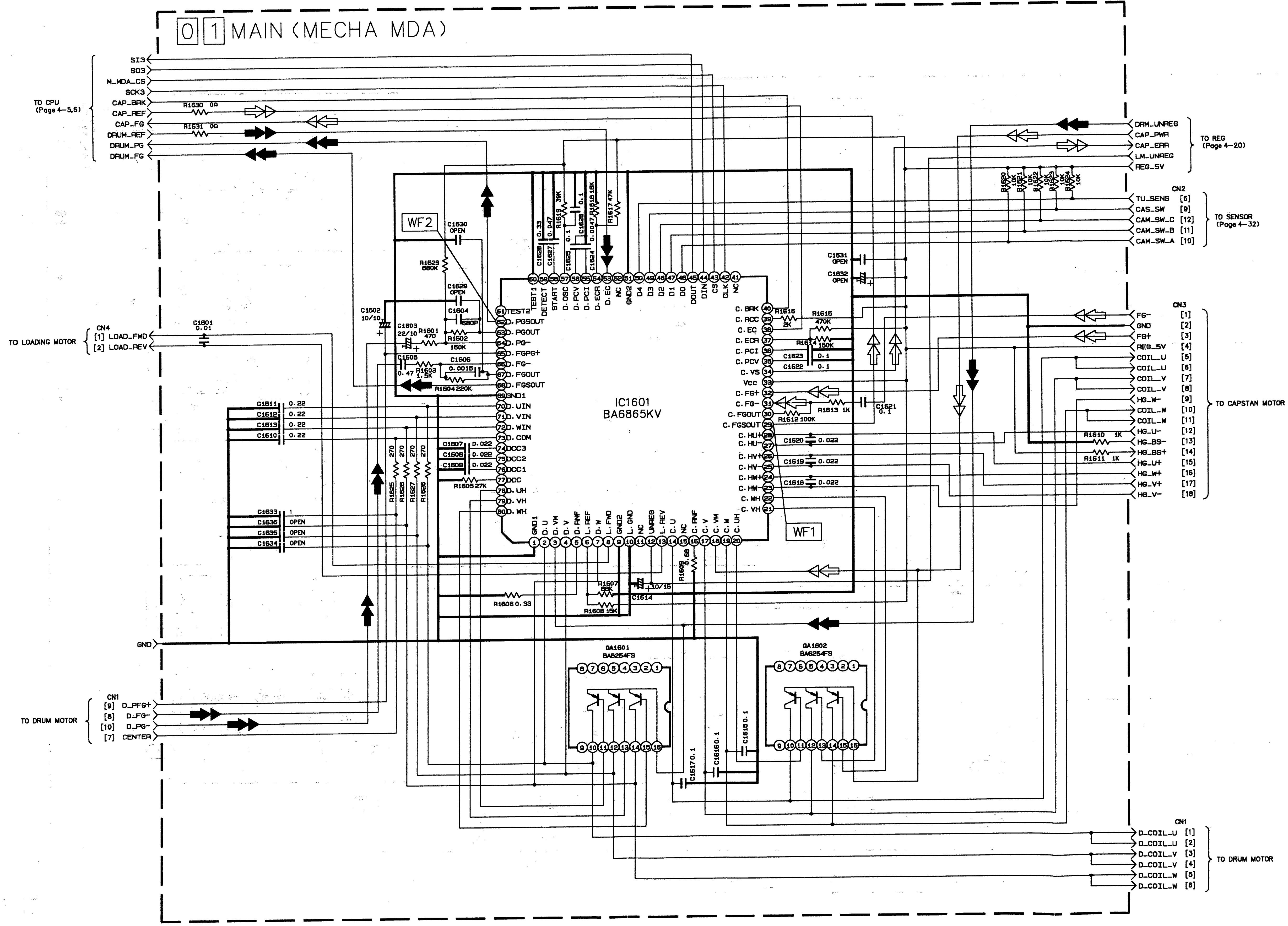
4.3 JACK SCHEMATIC DIAGRAM


01 MAIN (JACK)
SW503
NSW0092-001X
LIGHT SW
R501
1M
R502
OPEN
R504
220
R505
330
L501
NQR0129-002X
D501
MA8068
D502
MA8068
JLIP
J503
BATT. TERM
J502
LIGHT_SW
RXD
TXD
TO CPU
(Page 4-6)
BATT+
TO REG
(Page 4-19)
R503
0Ω
A_OUT
white
V_OUT
yellow
J504
AO_GND
AO_SIG
V_OUT
Y+C
TO Y/C & AUDIO
(Page 4-11,12)
DSC
J501
SIN
SOUT
D503
D504
D505
D506
SC_OUT
(OPEN)
S OUT
J505
OPEN
SY_OUT
GND
5
4
3
2
1
A
B
C
D

4.4 CTL AMP SCHEMATIC DIAGRAM


01 MAIN (CTL AMP)
IC1201
BA8400FV
TO CPU (Page 4-6)
CTL_OUT
CTL_ERS
REC_CTL
CN7
TO A/C HEAD
[6] CTL_HED+
[7] CTL_HED-
1 CTL_OUT
2 RECHPB
3 RECIN
4 GND
5 CTL+
6 CTL-
7 RECGND
14 3.0V
13 FILTER
12 HysBIAS
11 AGC
10 MONI_OUT
9 IN-
8 BIAS
R1201 820K
R1204 270K
R1202 820
R1203 4.7K
C1201 10/16
C1202 10/16
C1206 10/10
C1204 0.001
C1205 1
REG_3.3V
PB_CTL
TO REG (Page 4-20) (CN25-6)
GND
5
4
3
2
1
A
B
C
D

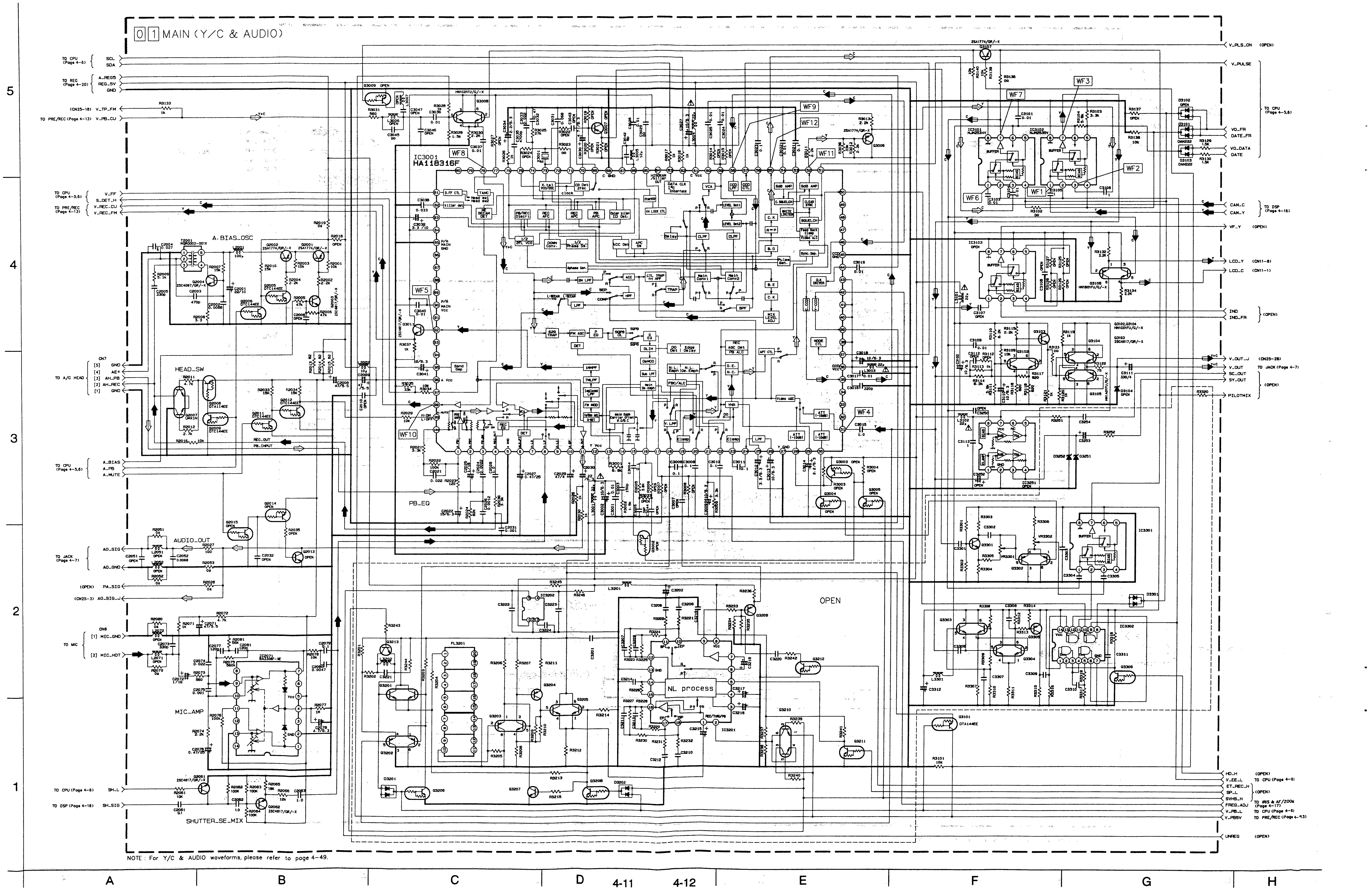
4.5 MECHA MDA SCHEMATIC DIAGRAM



0 1 MAIN (MECHA MDA)
TO CPU (Page 4-5,6)
SI3
SO3
M_MDA_CS
SCK3
CAP_BRK
CAP_REF
CAP_FG
DRUM_REF
DRUM_PG
DRUM_FG
R1630 0Ω
R1631 0Ω
TO LOADING MOTOR
CN4
[1] LOAD_FWD
[2] LOAD_REV
C1601 0.01
GND
TO DRUM MOTOR
CN1
[9] D_PFG+
[8] D_FG-
[10] D_PG-
[7] CENTER
WF2
C1630 OPEN
R1629 680K
C1629 OPEN
C1604 680P
C1602 10/10
C1603 22/10
R1601 470
R1602 150K
C1605 0.47
R1603 1.5K
C1606 0.0015
R1604 220K
C1611 0.22
C1612 0.22
C1613 0.22
C1610 0.22
C1633 1
C1636 OPEN
C1635 OPEN
C1634 OPEN
R1625 270
R1626 270
R1627 270
R1628 270
C1607 0.022
C1608 0.022
C1609 0.022
R1605 27K
C1628 0.33
C1627 0.047
R1619 39K
C1625 0.1
C1626 0.1
C1624 0.0047
R1618 18K
R1617 47K
IC1601
BA6865KV
61 TEST2
62 D.PGSOUT
63 D.PGOUT
64 D.PG-
65 D.FGPG+
66 D.FG-
67 D.FGOUT
68 D.FGSOUT
69 GND1
70 D.UIN
71 D.VIN
72 D.WIN
73 D.COM
74 DCC3
75 DCC2
76 DCC1
77 DCC
78 D.UH
79 D.VH
80 D.WH
60 TEST1
59 DETECT
58 START
57 D.OSC
56 D.PCV
55 D.PCI
54 D.ECR
53 D.EC
52 NC
51 GND2
50 D4
49 D3
48 D2
47 D1
46 D0
45 DOUT
44 DIN
43 CS
42 CLK
41 NC
40 C.BRK
39 C.RCC
38 C.EC
37 C.ECR
36 C.PCI
35 C.PCV
34 C.VS
33 Vcc
32 C.FG+
31 C.FG-
30 C.FGOUT
29 C.FGSOUT
28 C.HU+
27 C.HU-
26 C.HV+
25 C.HV-
24 C.HW+
23 C.HW-
22 C.WH
21 C.VH
1 GND1
2 D.U
3 D.VM
4 D.V
5 D.RNF
6 L.REF
7 D.W
8 L.FWD
9 GND2
10 L.GND
11 NC
12 UNREG
13 L.REV
14 C.U
15 NC
16 C.RNF
17 C.V
18 C.VM
19 C.W
20 C.UH
R1616 2K
R1615 470K
R1614 150K
C1623 0.1
C1622 0.1
R1613 1K
C1621 0.1
R1612 100K
C1620 0.022
C1619 0.022
C1618 0.022
WF1
C1631 OPEN
C1632 OPEN
R1609 0.68
R1607 68K
C1614 10/16
R1606 0.33
R1608 15K
QA1601 BA6254FS
QA1602 BA6254FS
C1617 0.1
C1616 0.1
C1615 0.1
DRM_UNREG
CAP_PWR
CAP_ERR
LM_UNREG
REG_5V
TO REG (Page 4-20)
R1620 10K
R1621 10K
R1622 10K
R1623 10K
R1624 10K
CN2
TU_SENS [6]
CAS_SW [9]
CAM_SW_C [12]
CAM_SW_B [11]
CAM_SW_A [10]
TO SENSOR (Page 4-32)
CN3
FG- [1]
GND [2]
FG+ [3]
REG_5V [4]
COIL_U [5]
COIL_U [6]
COIL_V [7]
COIL_V [8]
HG_W- [9]
COIL_W [10]
COIL_W [11]
HG_U- [12]
HG_BS- [13]
HG_BS+ [14]
HG_U+ [15]
HG_W+ [16]
HG_V+ [17]
HG_V- [18]
TO CAPSTAN MOTOR
R1610 1K
R1611 1K
CN1
D_COIL_U [1]
D_COIL_U [2]
D_COIL_V [3]
D_COIL_V [4]
D_COIL_W [5]
D_COIL_W [6]
TO DRUM MOTOR
5
4
3
2
1
A
B
C
D
E
F
G
H

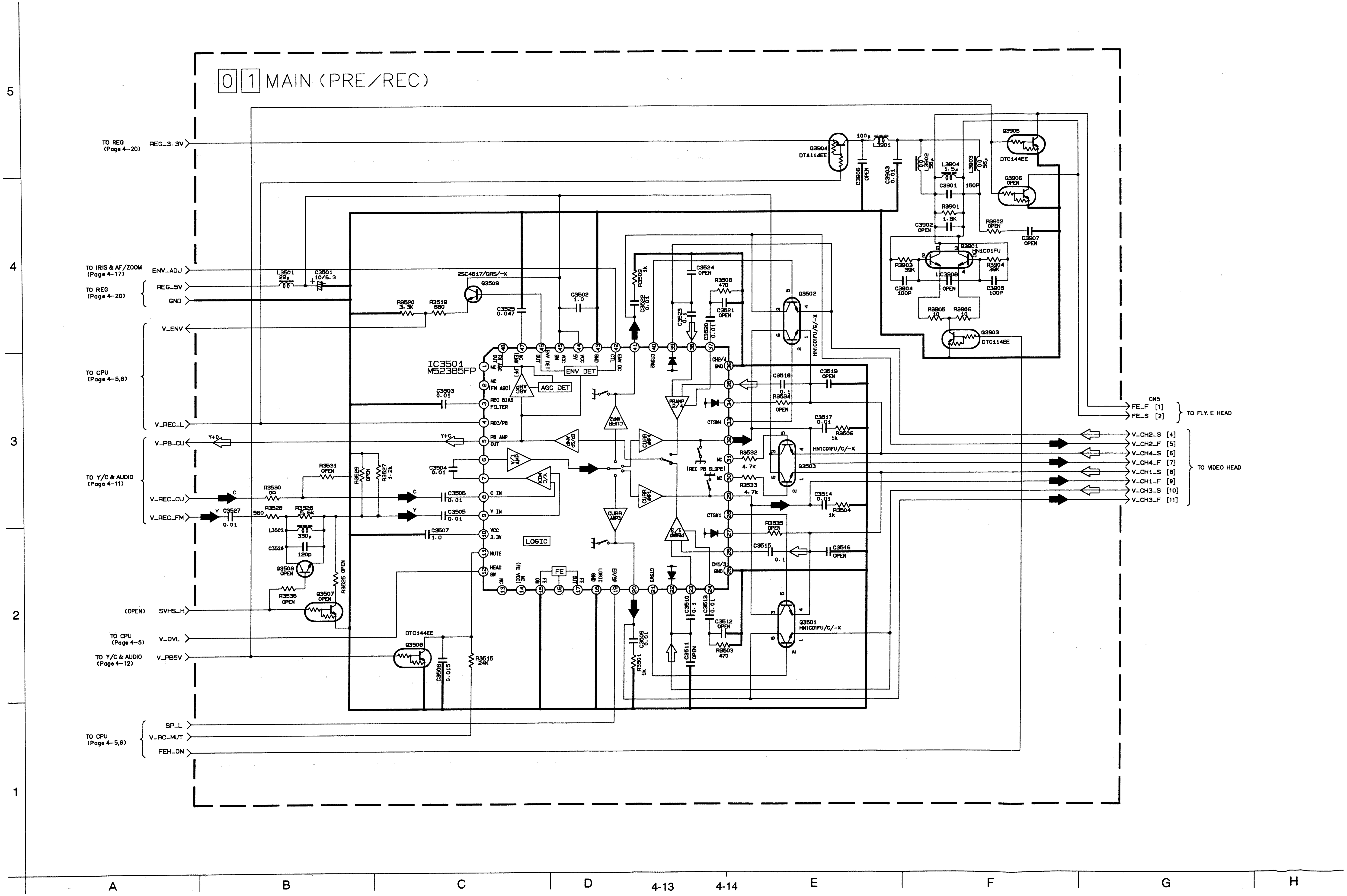
NOTE : For MECHA MDA waveforms, please refer to page 4-49.

4.6 Y/C & AUDIO SCHEMATIC DIAGRAM


0 1 MAIN (Y/C & AUDIO)
IC3001
HA118316F
A.BIAS_OSC
HEAD_SW
AUDIO_OUT
MIC_AMP
SHUTTER_SE_MIX
PB_EQ
NL process
OPEN
WF1
WF2
WF3
WF4
WF5
WF6
WF7
WF8
WF9
WF10
WF11
WF12
TO CPU (Page 4-6) SCL SDA
TO REG (Page 4-20) A_REG5 REG_5V GND
(CN25-18) V_TP_FM
TO PRE/REC (Page 4-13) V_PB_CU
TO CPU (Page 4-5,6) V_FF S_DET_H
TO PRE/REC (Page 4-13) V_REC_CU V_REC_FM
CN7
TO A/C HEAD
[5] GND
[4] AE+
[3] AH_PB
[2] AH_REC
[1] GND
TO CPU (Page 4-5,6) A_BIAS A_PB A_MUTE
TO JACK (Page 4-7) AO_SIG AO_GND
(OPEN) PA_SIG
(CN25-3) AO_SIG_J
CN8
TO MIC
[1] MIC_GND
[2] MIC_HOT
TO CPU (Page 4-6) SH_L
TO DSP (Page 4-18) SH_SIG
V_PLS_ON (OPEN)
V_PULSE
TO CPU (Page 4-5,6)
VD_FR
DATE_FR
VD_DATA
DATE
CAM_C
CAM_Y
TO DSP (Page 4-16)
VF_Y (OPEN)
LCD_Y (CN11-8)
LCD_C (CN11-1)
IND
IND_FR
(OPEN)
V_OUT_J (CN25-28)
V_OUT
SC_OUT
SY_OUT
TO JACK (Page 4-7)
(OPEN)
PILOTMIX
HD_H (OPEN)
V_EE_L
ET_REC_H
SP_L
SVHS_H
FREQ_ADJ
V_PB_L
V_PB5V
TO CPU (Page 4-6)
(OPEN)
TO IRIS & AF/ZOOM (Page 4-17)
TO CPU (Page 4-6)
TO PRE/REC (Page 4-13)
UNREG (OPEN)
IC3101 NJM2534V
IC3102 NJM2535V
IC3103
IC3251
IC3201
IC3202
IC3301
IC3302
FL3201
A
B
C
D
E
F
G
H
1
2
3
4
5

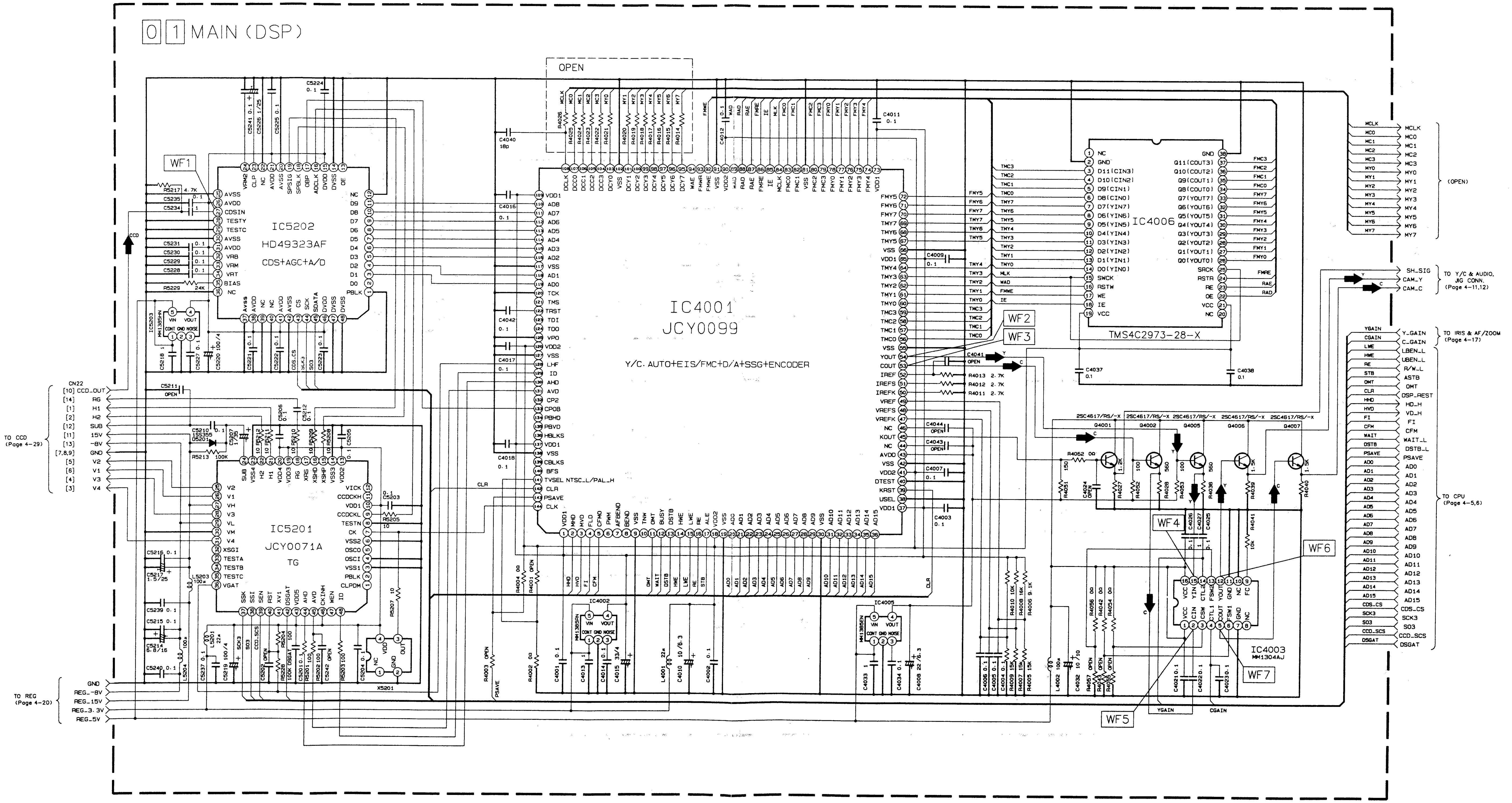
NOTE : For Y/C & AUDIO waveforms, please refer to page 4-49.

4.7 PRE/REC SCHEMATIC DIAGRAM



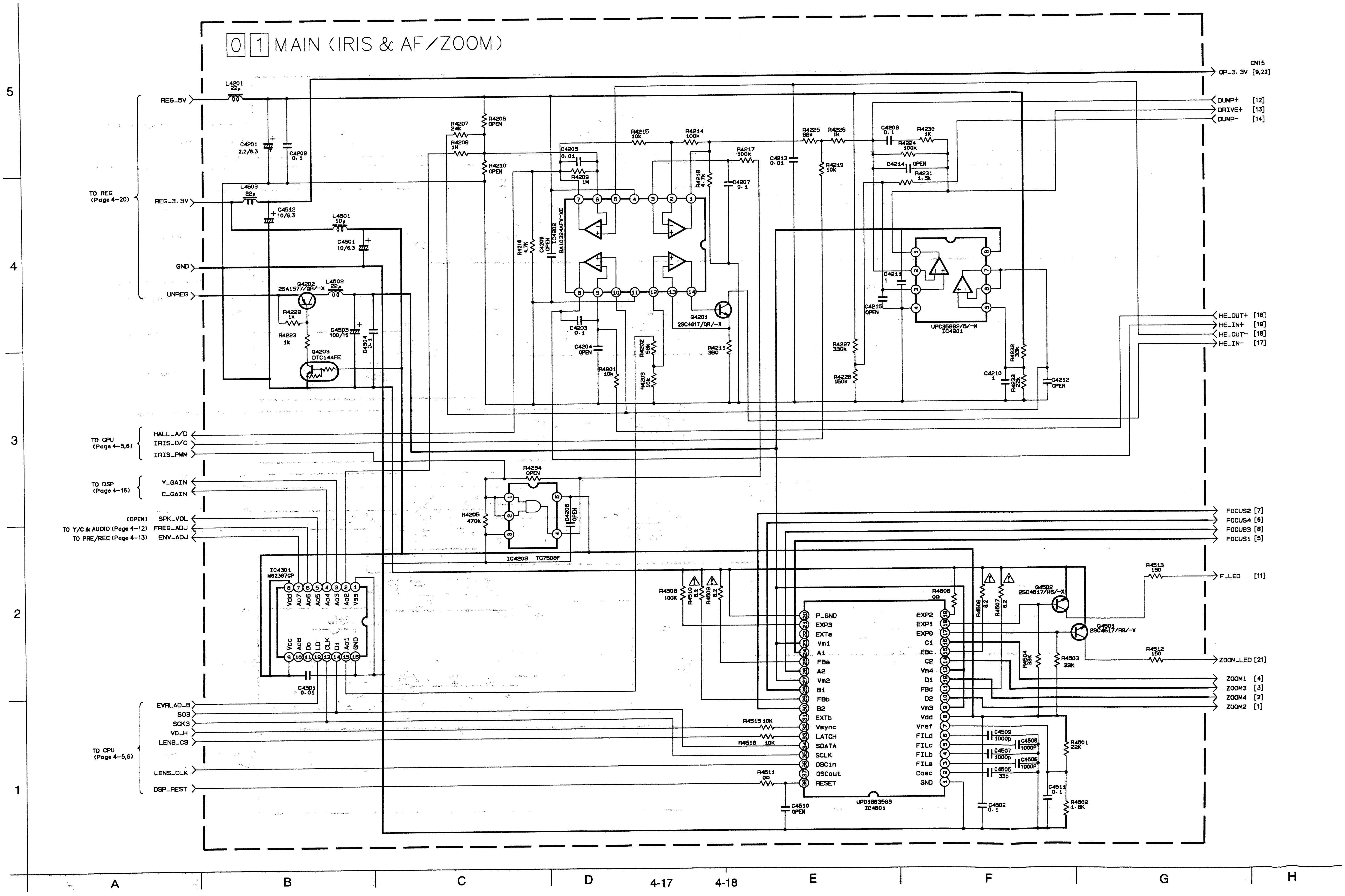
01 MAIN (PRE/REC)
TO REG (Page 4-20) REG_3.3V
TO IRIS & AF/ZOOM (Page 4-17) ENV_ADJ
TO REG (Page 4-20) REG_5V
GND
V_ENV
TO CPU (Page 4-5,6)
V_REC_L
V_PB_CU
TO Y/C & AUDIO (Page 4-11)
V_REC_CU
V_REC_FM
(OPEN) SVHS_H
TO CPU (Page 4-5) V_OVL
TO Y/C & AUDIO (Page 4-12) V_PB5V
TO CPU (Page 4-5,6)
SP_L
V_RC_MUT
FEH_ON
IC3501
M52385FP
L3501 22μ
C3501 10/6.3
2SC4617/QRS/-X
Q3509
R3520 3.3K
R3519 680
C3525 0.047
C3502 1.0
R3509 1k
C3522 0.01
C3524 OPEN
C3523 0.1
C3520 0.01
R3508 470
C3521 OPEN
Q3502
HN1C01FU/G/-X
C3503 0.01
C3504 0.01
C3506 0.01
C3505 0.01
C3507 1.0
R3531 OPEN
R3529 OPEN
R3527 1.2k
R3530 0Ω
R3528 560
R3526 5.6k
C3527 0.01
L3502 330μ
C3528 120p
Q3508 OPEN
R3536 OPEN
Q3507 OPEN
R3525 OPEN
DTC144EE
Q3506
C3508 0.015
R3515 24K
ENV DET
AGC DET
AGC AMP
PB AMP
REC BIAS FILTER
REC/PB
PB AMP OUT
C IN
Y IN
VCC 3.3V
MUTE
HEAD SW
LOGIC
FE
CURR AMP
CURR AMP1
CURR AMP2
CURR AMP3
PBAMP 2/4
PBAMP 1/3
CH2/4 GND
CH1/3 GND
CTSW4
CTSW1
(REC PB SLOPE)
C3518 0.1
R3534 OPEN
C3519 OPEN
C3517 0.01
R3506 1k
R3532 4.7k
R3533 4.7k
Q3503
HN1C01FU/G/-X
C3514 0.01
R3504 1k
R3535 OPEN
C3515 0.1
C3516 OPEN
R3501 1k
C3509 0.01
C3510 0.1
C3513 0.01
C3511 OPEN
C3512 OPEN
R3503 470
Q3501
HN1C01FU/G/-X
Q3904
DTA114EE
100μ
L3901
C3906 OPEN
C3903 0.01
L3902 56μ
L3904 1.5μ
L3903 56μ
C3901 150P
R3901 1.8K
C3902 OPEN
R3902 OPEN
C3907 OPEN
Q3905
DTC144EE
Q3906 OPEN
Q3901
HN1C01FU
R3903 39K
R3904 39K
C3904 100P
C3908 OPEN
C3905 100P
R3905 10
R3906 10
Q3903
DTC114EE
CN5
FE_F [1]
FE_S [2]
TO FLY. E HEAD
V_CH2_S [4]
V_CH2_F [5]
V_CH4_S [6]
V_CH4_F [7]
V_CH1_S [8]
V_CH1_F [9]
V_CH3_S [10]
V_CH3_F [11]
TO VIDEO HEAD
5
4
3
2
1
A
B
C
D
E
F
G
H

4.8 DSP SCHEMATIC DIAGRAM

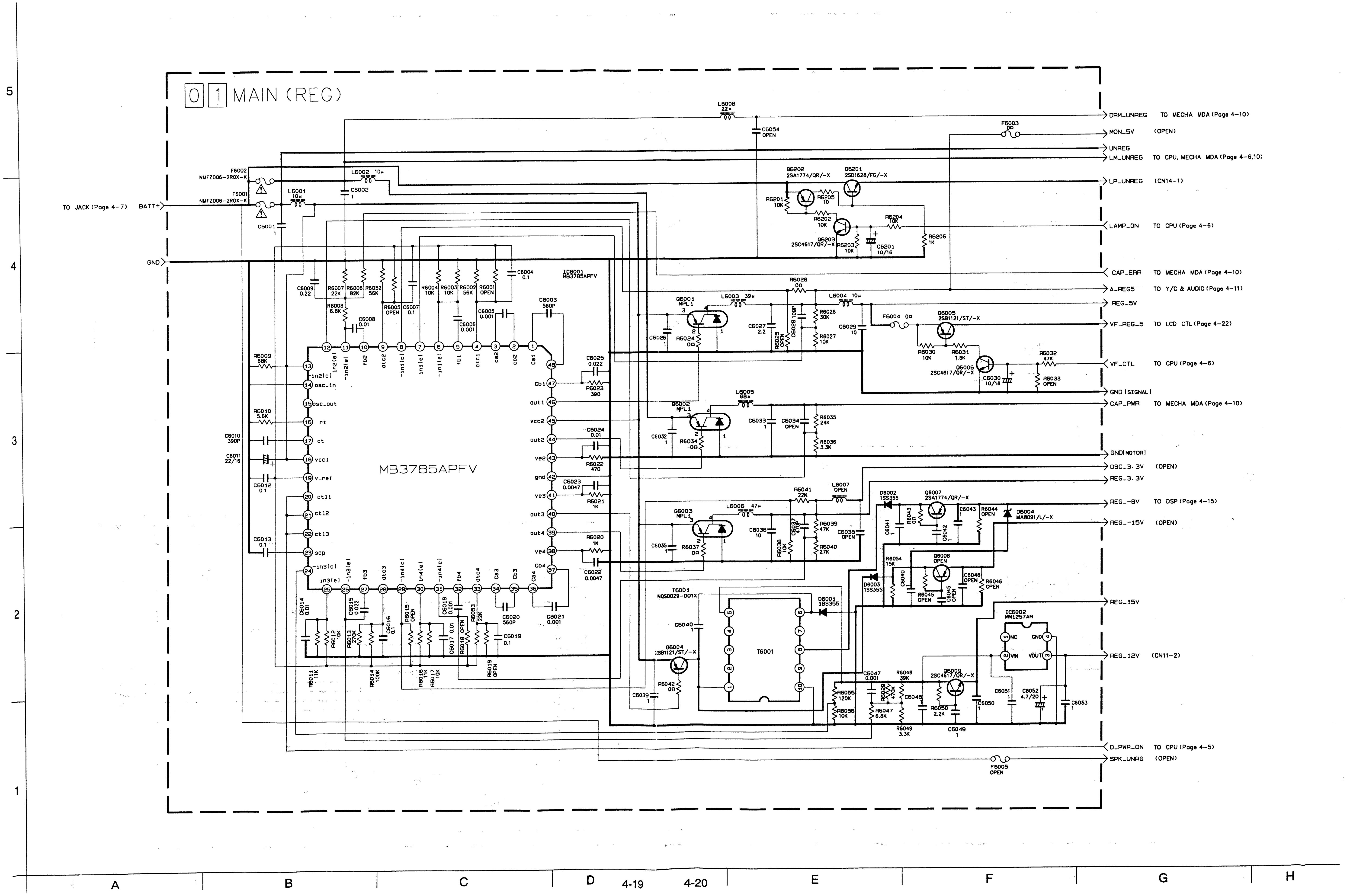

0 1 MAIN (DSP)
OPEN
IC5202
HD49323AF
CDS+AGC+A/D
IC5201
JCY0071A
TG
IC4001
JCY0099
Y/C. AUTO+EIS/FMC+D/A+SSG+ENCODER
IC4006
TMS4C2973-28-X
IC4003
MM1304AJ
IC4002
IC4005
IC5203
X5201
WF1
WF2
WF3
WF4
WF5
WF6
WF7
CN22
TO CCD (Page 4-29)
TO REG (Page 4-20)
GND
REG.-8V
REG._15V
REG._3.3V
REG._5V
(OPEN)
SH_SIG
CAM_Y
CAM_C
TO Y/C & AUDIO, JIG CONN. (Page 4-11,12)
Y_GAIN
C_GAIN
TO IRIS & AF/ZOOM (Page 4-17)
TO CPU (Page 4-5,6)
2SC4617/RS/-X
Q4001
Q4002
Q4005
Q4006
Q4007
YGAIN
CGAIN

NOTE : For DSP waveforms, please refer to page 4-49.

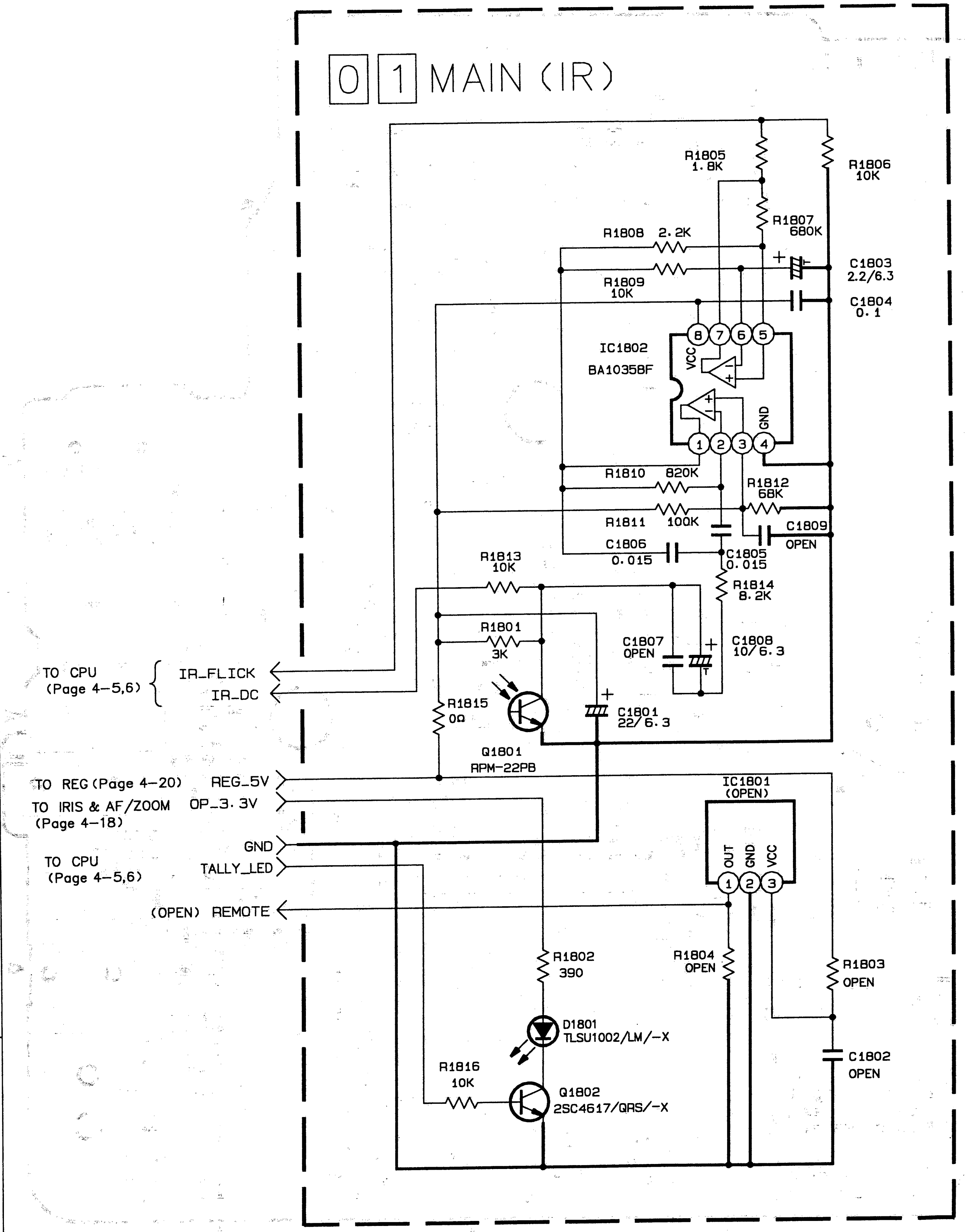
4.9 IRIS & AF/ZOOM SCHEMATIC DIAGRAM

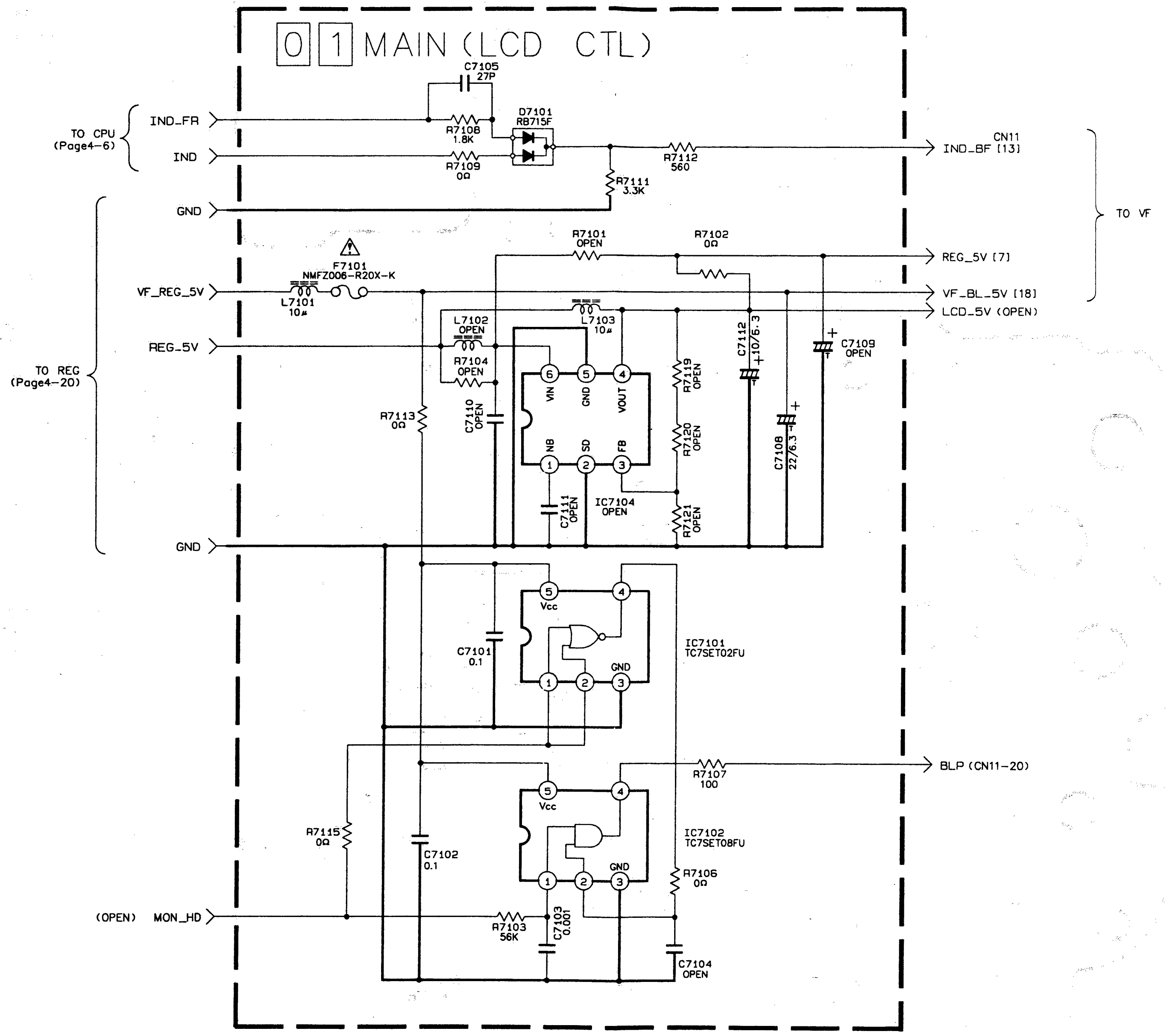

0 1 MAIN (IRIS & AF/ZOOM)
TO REG (Page 4-20)
REG_5V
REG_3. 3V
GND
UNREG
L4201 22µ
C4201 2.2/6.3
C4202 0. 1
L4503 22µ
C4512 10/6.3
L4501 10µ
C4501 10/6.3
Q4202 2SA1577/QR/-X
L4502 22µ
R4229 1k
R4223 1k
C4503 100/16
C4504 0. 1
Q4203 DTC144EE
R4207 24K
R4206 OPEN
R4208 1M
R4210 OPEN
R4216 4.7K
C4209 OPEN
IC4202 BA10324AFV-XE
C4205 0. 01
R4209 1M
R4215 10k
R4214 100k
R4217 100k
R4218 4.7k
C4207 0. 1
C4203 0. 1
C4204 OPEN
R4201 10k
R4202 56k
R4203 10k
Q4201 2SC4617/QR/-X
R4211 390
C4213 0. 01
R4225 68k
R4226 1k
R4219 10k
C4208 0. 1
R4230 1K
R4224 100k
C4214 OPEN
R4231 1. 5k
C4211 1
C4215 OPEN
UPC358G2/5/-W IC4201
R4227 330K
R4228 150k
R4232 33k
C4210 1
R4233 22k
C4212 OPEN
CN15
OP_3. 3V [9,22]
DUMP+ [12]
DRIVE+ [13]
DUMP- [14]
HE_OUT+ [16]
HE_IN+ [19]
HE_OUT- [18]
HE_IN- [17]
TO CPU (Page 4-5,6)
HALL_A/D
IRIS_O/C
IRIS_PWM
TO DSP (Page 4-16)
Y_GAIN
C_GAIN
(OPEN) SPK_VOL
TO Y/C & AUDIO (Page 4-12) FREQ_ADJ
TO PRE/REC (Page 4-13) ENV_ADJ
R4234 OPEN
R4205 470k
C4206 OPEN
IC4203 TC7S08F
IC4301 M62367GP
Vdd Ao7 Ao6 Ao5 Ao4 Ao3 Ao2 Vss
Vcc Ao8 Do LD CLK D1 Ao1 GND
C4301 0. 01
EVRLAD_B
SO3
SCK3
VD_H
LENS_CS
TO CPU (Page 4-5,6)
LENS_CLK
DSP_REST
FOCUS2 [7]
FOCUS4 [6]
FOCUS3 [8]
FOCUS1 [5]
R4506 100K
R4510 8.2
R4509 8.2
R4505 0Ω
R4508 8.2
R4507 8.2
Q4502 2SC4617/RS/-X
Q4501 2SC4617/RS/-X
R4513 150
F_LED [11]
R4512 150
ZOOM_LED [21]
R4504 33K
R4503 33K
ZOOM1 [4]
ZOOM3 [3]
ZOOM4 [2]
ZOOM2 [1]
P_GND EXP3 EXTa Vm1 A1 FBa A2 Vm2 B1 FBb B2 EXTb Vsync LATCH SDATA SCLK OSCin OSCout RESET
EXP2 EXP1 EXP0 C1 FBc C2 Vm4 D1 FBd D2 Vm3 Vdd Vref FILd FILc FILb FILa Cosc GND
R4515 10K
R4516 10K
R4511 0Ω
C4510 OPEN
UPD16835O3 IC4501
C4509 1000p
C4508 1000P
C4507 1000p
C4506 1000P
C4505 33p
C4502 0. 1
C4511 0. 1
R4501 22K
R4502 1. 8K
5
4
3
2
1
A
B
C
D
E
F
G
H

4.10 REGULATOR SCHEMATIC DIAGRAM


0 1 MAIN (REG)
TO JACK (Page 4-7)
BATT+
GND
F6002 NMFZ006-2R0X-K
F6001 NMFZ006-2R0X-K
L6001 10µ
C6001 1
L6002 10µ
C6002 1
L6008 22µ
C5054 OPEN
F6003 0Ω
IC6001 MB3785APFV
MB3785APFV
Q6202 2SA1774/QR/-X
Q6201 2SD1628/FG/-X
Q6203 2SC4617/QR/-X
Q6001 MPL1
Q6002 MPL1
Q6003 MPL1
Q6004 2SB1121/ST/-X
Q6005 2SB1121/ST/-X
Q6006 2SC4617/QR/-X
Q6007 2SA1774/QR/-X
Q6008 OPEN
Q6009 2SC4617/QR/-X
D6001 1SS355
D6002 1SS355
D6003 1SS355
D6004 MA8091/L/-X
T6001 NQS0029-001X
IC6002 NM1257AM
L6003 39µ
L6004 10µ
L6005 68µ
L6006 47µ
L6007 OPEN
F6004 0Ω
F6005 OPEN
DRM_UNREG TO MECHA MDA (Page 4-10)
MON_5V (OPEN)
UNREG
LM_UNREG TO CPU, MECHA MDA (Page 4-6,10)
LP_UNREG (CN14-1)
LAMP_ON TO CPU (Page 4-6)
CAP_ERR TO MECHA MDA (Page 4-10)
A_REG5 TO Y/C & AUDIO (Page 4-11)
REG_5V
VF_REG_5 TO LCD CTL (Page 4-22)
VF_CTL TO CPU (Page 4-6)
GND (SIGNAL)
CAP_PWR TO MECHA MDA (Page 4-10)
GND (MOTOR)
DSC_3.3V (OPEN)
REG_3.3V
REG_-8V TO DSP (Page 4-15)
REG_-15V (OPEN)
REG_15V
REG_12V (CN11-2)
D_PWR_ON TO CPU (Page 4-5)
SPK_UNRG (OPEN)
5
4
3
2
1
A
B
C
D
E
F
G
H

4.11 IR AND LCD CTL SCHEMATIC DIAGRAMS


0 1 MAIN (IR)
R1805
1.8K
R1806
10K
R1807
680K
R1808 2.2K
R1809
10K
C1803
2.2/6.3
C1804
0.1
IC1802
BA10358F
VCC
GND
R1810 820K
R1811 100K
R1812
68K
C1809
OPEN
C1806
0.015
C1805
0.015
R1814
8.2K
R1813
10K
R1801
3K
C1807
OPEN
C1808
10/6.3
R1815
0Ω
C1801
22/6.3
Q1801
RPM-22PB
TO CPU
(Page 4-5,6)
IR_FLICK
IR_DC
TO REG (Page 4-20)
REG_5V
TO IRIS & AF/ZOOM
(Page 4-18)
OP_3.3V
GND
TO CPU
(Page 4-5,6)
TALLY_LED
(OPEN) REMOTE
IC1801
(OPEN)
OUT
GND
VCC
R1802
390
R1804
OPEN
R1803
OPEN
D1801
TLSU1002/LM/-X
R1816
10K
Q1802
2SC4617/QRS/-X
C1802
OPEN

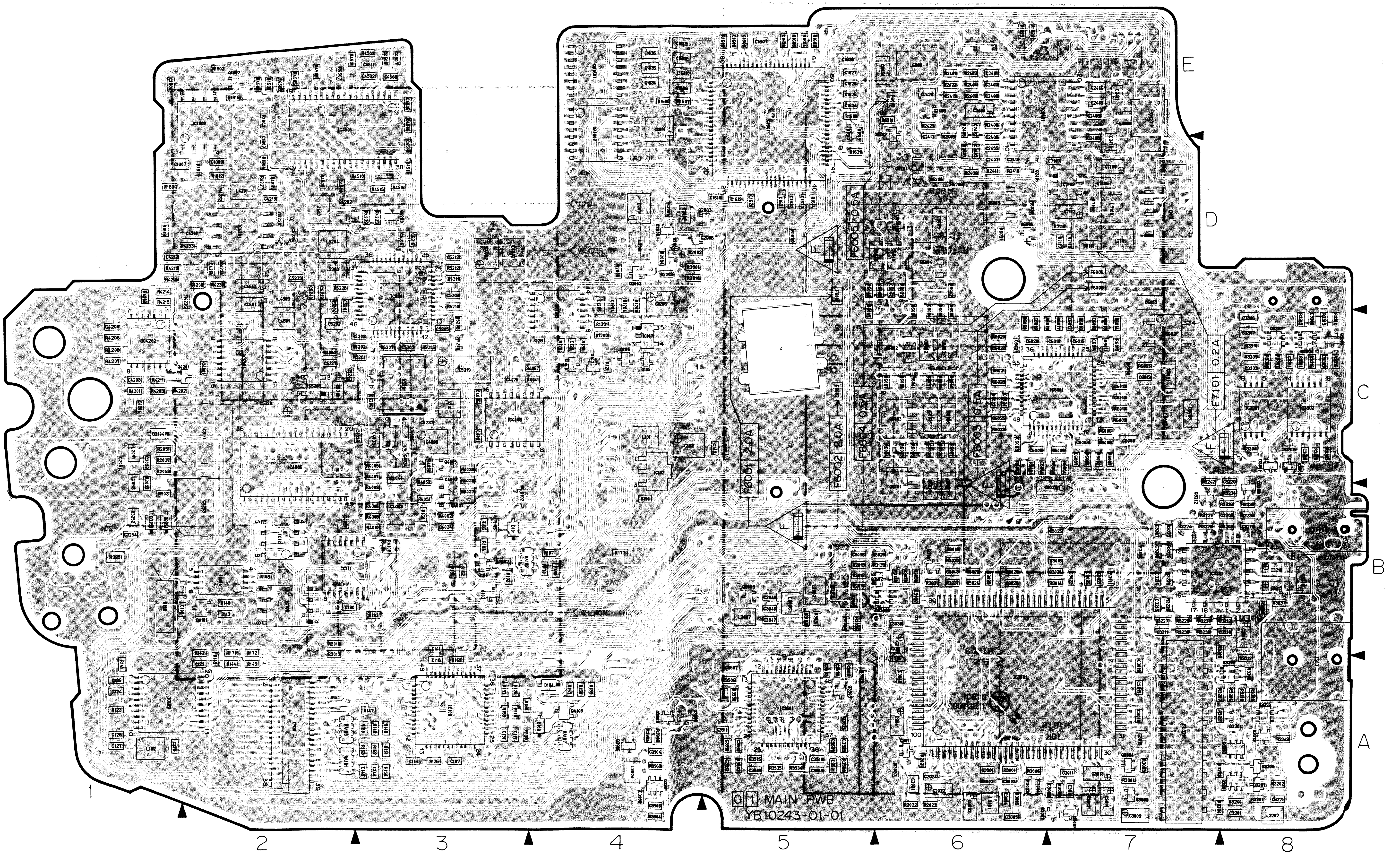

0 1 MAIN (LCD CTL)
C7105
27P
TO CPU
(Page4-6)
IND_FR
IND
R7108
1.8K
R7109
0Ω
D7101
RB715F
R7112
560
R7111
3.3K
CN11
IND_BF [13]
TO VF
GND
R7101
OPEN
R7102
0Ω
F7101
NMFZ006-R20X-K
VF_REG_5V
L7101
10µ
REG_5V [7]
VF_BL_5V [18]
LCD_5V (OPEN)
L7102
OPEN
L7103
10µ
REG_5V
R7104
OPEN
TO REG
(Page4-20)
R7113
0Ω
C7110
OPEN
VIN
GND
VOUT
NB
SD
FB
R7119
OPEN
R7120
OPEN
R7121
OPEN
C7111
OPEN
IC7104
OPEN
C7112
10/6.3
C7108
22/6.3
C7109
OPEN
GND
Vcc
C7101
0.1
IC7101
TC7SET02FU
R7107
100
BLP (CN11-20)
R7115
0Ω
C7102
0.1
IC7102
TC7SET08FU
R7106
0Ω
(OPEN) MON_HD
R7103
56K
C7103
0.001
C7104
OPEN

4.12 MAIN CIRCUIT BOARD

CAUTION:
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE AND RATED FUSE.

ATTENTION:
POUR UNE PROTECTION PERMANENTE CONTRE LES RISQUE DÔINCENDE, REMPLACER LE FUSIBLE PAR UN AUTRE DE MEMETYPE ET DE MEMETENSION.

FOIL SIDE (B)


E
D
C
B
A
1
2
3
4
5
6
7
8
F6001 2.0A
F6002 2.0A
F6004 0.5A
F6003 0.5A
F6005 0.5A
F7101 0.2A
01 MAIN PWB
YB10243-01-01

COMPONENT PARTS LOCATION GUIDE (MAIN)

REF.No.	LOCATION		
CAPACITOR			
C101	A	C	4B
C102	B	C	4C
C103	A	C	2A
C104	A	C	3B
C105	A	C	4B
C106	A	C	4B
C107	B	C	3A
C108	B	C	1B
C109	A	C	3B
C110	A	C	3B
C111	B	C	1B
C112	A	C	2B
C113	A	C	2B
C114	A	C	4B
C115	A	C	4C
C116	B	C	3A
C117	B	C	3A
C118	B	C	3A
C119	A	C	4C
C120	B	C	4C
C121	A	C	3A
C122	A	C	3A
C123	A	C	2A
C124	B	C	1A
C125	B	C	1A
C126	B	C	1A
C127	B	C	1A
C128	B	C	1A
C129	B	C	2A
C130	B	C	2B
C131	B	C	3A
C132	A	C	2B
C133	A	C	3B
C134	A	C	3B
C135	A	C	3A
C136	A	C	3A
C137	A	C	3A
C138	A	C	2A
C139	A	C	2A
C140	A	C	2B
C141	B	C	3B
C142	B	C	5C
C143	A	C	2B
C144	B	C	3A
C145	B	C	3A
C146	A	C	3A
C147	A	C	4A
C1201	A	C	4C
C1202	A	C	4D
C1204	B	C	4D
C1205	B	C	4D
C1206	B	C	4D
C1601	A	C	4D
C1602	A	C	5E
C1603	A	C	5D
C1604	A	C	5E
C1605	A	C	5E
C1606	B	C	5E
C1607	B	C	5E
C1608	B	C	5E
C1609	B	C	5E
C1610	A	C	5D
C1611	B	C	4E
C1612	B	C	4E
C1613	B	C	4E
C1614	B	C	4E
C1615	A	C	4E
C1616	A	C	4E
C1617	A	C	4D
C1618	B	C	5D
C1619	B	C	5D
C1620	B	C	5D
C1621	A	C	5D
C1622	B	C	5D
C1623	B	C	5D
C1624	B	C	5E
C1625	B	C	5E
C1626	B	C	5E
C1627	B	C	5E
C1628	B	C	5E
C1629	A	C	5E
C1630	B	C	5E
C1631	B	C	5D
C1632	A	C	5E
C1633	A	C	5D
C1634	B	C	4E
C1635	B	C	4E
C1636	B	C	4E
C1801	A	C	2D
C1802	B	C	2D
C1803	A	C	2E
C1804	B	C	1E
C1805	A	C	2D
C1806	A	C	2E
C1807	B	C	1D
C1808	A	C	2D
C1809	B	C	2D
C2001	B	C	4D
C2002	A	C	4D
C2003	A	C	4D
C2004	A	C	4D
C2005	A	C	4D
C2006	B	C	4D
C2008	A	C	6B
C2009	A	C	6B
C2010	A	C	6A
C2021	B	C	6A
C2022	B	C	6A
C2024	B	C	6A
C2025	A	C	6A
C2026	A	C	6A
C2027	A	C	6A
C2028	A	C	6A
C2029	A	C	6A
C2030	A	C	6A
C2031	A	C	6A
C2032	A	C	6A
C2051	B	C	1C
C2052	B	C	1C
C2061	A	C	7A
C2062	A	C	6A
C2063	A	C	6A
C2071	A	C	5B
C2072	A	C	5B
C2073	A	C	5B
C2074	A	C	5B
C2075	A	C	5B
C2076	A	C	5B
C2077	A	C	5B
C2078	A	C	6B
C2079	A	C	6B
C2080	A	C	6B
C2081	A	C	5B
C2401	B	C	6E
C2402	B	C	6E
C2403	B	C	6E
C2404	B	C	6E
C2405	B	C	6D
C2406	B	C	6D
C2407	B	C	6D
C2408	B	C	7D
C2409	B	C	7E
C2410	B	C	7D
C2411	B	C	7E
C2412	A	C	6E
C2413	B	C	7E
C2414	B	C	7E
C2415	A	C	7E
C2416	B	C	6D
C2417	B	C	6D
C2419	B	C	6E
C2420	B	C	6E
C2421	A	C	6E
C2422	B	C	6E
C2423	B	C	6D
C3001	B	C	6A
C3002	B	C	6A
C3003	B	C	6A
C3004	B	C	6A
C3005	B	C	6A
C3006	A	C	6A
C3007	A	C	7A
C3008	B	C	7A
C3009	B	C	7A
C3010	B	C	7A
C3011	B	C	7A
C3012	B	C	7A
C3013	B	C	7A
C3014	B	C	7A
C3015	B	C	7A
C3016	B	C	7A
C3017	B	C	7A
C3018	A	C	7A
C3019	B	C	7A
C3021	B	C	7B
C3022	B	C	7B
C3023	B	C	7B
C3024	B	C	7B
C3025	B	C	7B
C3026	B	C	6B
C3027	A	C	6B
C3029	B	C	6B
C3030	A	C	6B
C3031	A	C	6B
C3032	A	C	6B
C3033	A	C	6B
C3034	A	C	6B
C3035	A	C	6B
C3036	B	C	5B
C3037	B	C	6B
C3038	B	C	6B
C3039	B	C	6B
C3040	B	C	6A
C3041	B	C	6A
C3042	A	C	6B
C3043	B	C	6B
C3044	B	C	6A
C3045	B	C	5B
C3046	B	C	5B
C3047	B	C	5B
C3101	A	C	7B
C3102	A	C	7A
C3103	A	C	7B
C3104	A	C	7B
C3105	A	C	7B
C3106	A	C	7B
C3107	A	C	7B
C3108	A	C	7B
C3109	A	C	7B
C3110	A	C	7B
C3111	B	C	2C
C3112	A	C	7A
C3113	A	C	1A
C3201	B	C	8A
C3202	A	C	7B
C3206	B	C	8B
C3207	B	C	7B
C3208	B	C	8B
C3209	B	C	7B
C3210	B	C	8B
C3211	B	C	7B
C3212	B	C	8B
C3213	B	C	7B
C3214	B	C	7B
C3215	B	C	8B
C3216	B	C	8B
C3217	B	C	8B
C3218	B	C	8B
C3219	B	C	8B
C3220	B	C	8C
C3221	B	C	8A
C3222	A	C	8B
C3223	A	C	8B
C3224	A	C	8B
C3250	A	C	7B
C3252	A	C	7B
C3253	B	C	2B
C3254	B	C	1B
C3301	A	C	8D
C3302	A	C	8C
C3303	B	C	8C
C3304	B	C	8C
C3305	A	C	8C
C3306	B	C	8C
C3307	B	C	8C
C3308	B	C	8C
C3309	B	C	8C
C3310	B	C	8C
C3311	B	C	8C
C3312	A	C	8C
C3501	A	C	5A
C3502	A	C	5A
C3503	B	C	5A
C3504	A	C	5A
C3505	A	C	5A
C3506	B	C	5A
C3507	B	C	5A
C3508	A	C	5A
C3509	A	C	5A
C3510	B	C	5A
C3511	B	C	5A
C3512	B	C	5A
C3513	B	C	5A
C3514	A	C	5A
C3515	B	C	5A
C3516	B	C	5A
C3517	A	C	5A
C3518	B	C	5A
C3519	B	C	5A
C3520	B	C	5A
C3521	B	C	5A
C3522	A	C	5A
C3523	B	C	5A
C3524	B	C	5A
C3525	B	C	5A
C3526	A	C	5A
C3527	A	C	5A
C3901	A	C	4A
C3902	A	C	4A
C3903	A	C	4A
C3904	B	C	4A
C3905	B	C	4A
C3906	A	C	4A
C3907	A	C	4A
C3908	B	C	4A
C4001	A	C	3C
C4002	A	C	3C
C4003	A	C	3B
C4004	A	C	3B
C4005	A	C	3B
C4006	A	C	3B
C4007	A	C	3B
C4008	B	C	3C
C4009	A	C	2B
C4010	A	C	2B
C4011	A	C	2B
C4012	A	C	2C
C4013	A	C	1B
C4014	A	C	2B
C4015	A	C	2B
C4016	A	C	2C
C4017	A	C	2D
C4018	A	C	3D
C4021	B	C	3C
C4022	A	C	3C
C4023	A	C	3C
C4024	B	C	3B
C4025	B	C	3C
C4026	B	C	3C
C4027	A	C	3C
C4032	B	C	3D
C4033	B	C	3C
C4034	B	C	3C
C4037	B	C	2B
C4038	B	C	3C
C4040	A	C	1C
C4041	A	C	2B
C4042	B	C	2C
C4043	B	C	3B
C4044	B	C	3C
C4201	A	C	1D
C4202	A	C	1D
C4203	B	C	1C
C4204	B	C	1C
C4205	A	C	1C
C4206	A	C	1C
C4207	A	C	1C
C4208	B	C	2D
C4209	B	C	1C
C4210	B	C	2D
C4211	A	C	1D
C4212	B	C	1D
C4213	A	C	1C
C4214	B	C	2D
C4215	B	C	2D
C4301	B	C	2C
C4501	B	C	2D
C4502	B	C	3E
C4503	A	C	2D
C4504	B	C	2D
C4505	B	C	3E
C4506	B	C	3E
C4507	B	C	3E
C4508	B	C	3E
C4509	B	C	3E
C4510	B	C	3D
C4511	B	C	3E
C4512	B	C	2D
C5201	B	C	2D
C5202	B	C	2C
C5203	B	C	3C
C5204	B	C	3C
C5205	B	C	3C
C5206	B	C	3D
C5207	A	C	3D
C5210	A	C	3D
C5211	A	C	3D
C5212	B	C	3D
C5214	A	C	3D
C5215	B	C	3D
C5216	B	C	3D
C5217	A	C	3D
C5218	B	C	2C
C5219	B	C	3C
C5220	B	C	2C
C5221	A	C	2D
C5222	A	C	3D
C5223	B	C	2D
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C6007	B	C	7C
C6008	B	C	7C
C6009	B	C	7C
C6010	B	C	7C
C6011	A	C	6D
C6012	B	C	7C
C6013	B	C	7C
C6014	B	C	7C
C6015	B	C	7C
C6016	B	C	7C
C6017	B	C	7C
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C6051	B	C	7C
C6052	A	C	6D
C6053	B	C	7D
C6054	B	C	6E
C6201	A	C	6D
C7101	A	C	7E
C7102	A	C	7D
C7103	A	C	7D
C7104	A	C	7D
C7105	A	C	7E
C7106	B	C	7D
C7107	B	C	7D
C7108	A	C	7D
C7109	B	C	7D
C7112	B	C	7D
CONNECTOR			
CN1	A	C	4A
CN2	A	C	8A
CN3	A	C	4D
CN4	A	C	2A
CN5	A	C	5A
CN7	A	C	3D
CN8	A	C	5B
CN11	A	C	7D
CN12	B	C	7D
CN13	A	C	8C
CN14	A	C	6D
CN15	A	C	2E
CN16	A	C	7E
CN18	A	C	4E
CN19	B	C	2A
CN22	A	C	3D
CN25	A	C	4C
CN26	A	C	5B
CN27	B	C	7E
DIODE			
D101	B	C	3B
D102	B	C	3B
D103	B	C	4A
D104	B	C	4A
D501	A	C	8B
D502	A	C	8B
D503	A	C	8B
D504	A	C	7B
D505	A	C	8B
D506	A	C	8B
D1801	A	C	2E
D3101	A	C	2A
D3102	A	C	2A
D3103	A	C	2A
D3104	B	C	1C
D3201	B	C	8A
D3202	A	C	8A
D3251	B	C	1B
D3252	B	C	1B
D3301	B	C	8C
D5201	A	C	3D
D6001	B	C	6D
D6002	A	C	7C
D6003	A	C	7C
D6004	A	C	7C
D6005	A	C	7C
D7101	A	C	7E
DA101	B	C	2B
DA105	B	C	4A
DA107	A	C	4A
IC			
IC101	A	C	3A
IC102	B	C	4C
IC103	A	C	2A
IC104	B	C	2B
IC105	B	C	2B
IC107	B	C	4C
IC108	B	C	3A
IC109	B	C	1A
IC110	A	C	2B
IC111	B	C	2B
IC112	B	C	2B
IC1201	B	C	4C
IC1601	B	C	5E
IC1801	A	D	2D
IC1802	B	C	2E
IC2071	A	C	5B
IC2401	B	C	6E
IC3001	B	C	6A
IC3101	A	C	7B
IC3102	A	C	7B
IC3103	A	C	7B
IC3201	B	C	7B
IC3202	A	C	8B
IC3251	A	C	1A
IC3301	B	C	8C
IC3302	B	C	8C
IC3501	B	C	5A
IC4001	A	C	2C
IC4002	A	C	2B
IC4003	B	C	3C
IC4005	B	C	3C
IC4006	B	C	2C
IC4201	B	C	2D
IC4202	B	C	1C
IC4203	A	C	1C
IC4301	B	C	2C
IC4501	B	C	2E
IC5201	B	C	3D
IC5202	A	C	2D
IC5203	B	C	2C
IC6001	B	C	7C
IC6002	B	C	7C
IC7101	A	C	7E
IC7102	A	C	7D
IC7103	B	C	7D
COIL			
L101	B	C	4C
L102	B	C	1A
L501	A	C	8B
L2001	B	C	4D
L2002	B	C	5B
L2051	B	C	1C
L2052	B	C	1C
L2071	A	C	5B
L2072	A	C	5B
L2401	A	C	6E
L3001	B	C	6A
L3003	A	C	7A
L3004	A	C	6B
L3005	A	C	6B
L3006	B	C	5B
L3007	B	C	5B
L3101	A	C	7A
L3102	A	C	1A
L3201	A	C	8B
L3202	B	C	8A
L3301	A	C	7B
L3501	A	C	5A
L3502	A	C	5A
L3901	A	C	4A
L3902	A	C	4A
L3903	A	C	4A
L3904	B	C	4A
L4001	A	C	1B
L4002	B	C	3D
L4201	B	C	2D
L4501	B	C	2C
L4502	B	C	2D
L4503	B	C	2D
L5201	B	C	3C
L5203	B	C	2D
L5204	B	C	2D
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L6002	A	C	6C
L6003	A	C	6C
L6004	A	C	6C
L6005	A	C	6C
L6006	A	C	6C
L6007	B	C	7C
L6008	B	C	6E
L7101	B	C	7D
L7103	B	C	7D
TRANSISTOR			
Q101	B	C	3B
Q102	B	C	3B
Q105	B	C	4C
Q106	B	C	4C
Q107	B	C	4C
Q108	B	C	4C
Q109	A	C	7A
Q110	A	C	7A
Q111	A	C	7A
Q112	A	C	7A
Q113	A	C	8C
Q1801	A	D	2D
Q1802	B	C	2E
Q2001	B	C	4D
Q2002	B	C	4D
Q2003	B	C	5D
Q2004	A	C	4D
Q2005	B	C	4D
Q2006	B	C	4D
Q2007	A	C	4C
Q2008	A	C	4C
Q2009	A	C	4D
Q2011	A	C	6A
Q2012	A	C	6A
Q2013	A	C	6A
Q2014	A	C	6A
Q2015	A	C	6A
Q2061	A	C	7A
Q2062	A	C	6A
Q2401	B	C	6D
Q2402	A	C	7E
Q2403	A	C	6E
Q2404	A	C	6E
Q2405	B	C	6E
Q3002	B	C	7A
Q3003	B	C	7A
Q3004	B	C	7A
Q3005	B	C	7A
Q3006	A	C	7B
Q3007	B	C	6B
Q3008	B	C	6B
Q3009	B	C	5B
Q3011	B	C	6A
Q3101	A	C	7A
Q3102	A	C	7A
Q3103	A	C	7A

REF.No.	LOCATION		
Q3104	A	C	1A
Q3105	A	C	1A
Q3106	A	C	7B
Q3107	B	C	6B
Q3201	B	C	8A
Q3202	B	C	8A
Q3203	B	C	8A
Q3204	B	C	8A
Q3205	B	C	8A
Q3206	B	C	8A
Q3207	A	C	8A
Q3208	A	C	8A
Q3209	B	C	8B
Q3210	A	C	8A
Q3211	A	C	8B
Q3212	B	C	7B
Q3213	B	C	8A
Q3301	A	C	8C
Q3302	A	C	8C
Q3303	B	C	8C
Q3304	B	C	8C
Q3305	B	C	8C
Q3306	B	C	8C
Q3501	A	C	5A
Q3502	A	C	5A
Q3503	A	C	5A
Q3506	A	C	5A
Q3507	A	C	5A
Q3508	A	C	5A
Q3509	B	C	5A
Q3901	B	C	4A
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Q4007	A	C	4C
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Q4203	B	C	3D
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Q6003	B	C	6C
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Q6005	B	C	6D
Q6006	B	C	6D
Q6007	A	C	7C
Q6008	A	C	7C
Q6009	A	C	7C
Q6201	B	C	6D
Q6202	B	C	6E
Q6203	A	C	6E
QA1601	B	C	4E
QA1602	B	C	4E
RESISTOR			
R101	A	C	2A
R102	B	C	3B
R103	B	C	3B
R104	B	C	3B
R105	B	C	3B
R106	B	C	3B
R107	B	C	4B
R108	B	C	2B
R109	A	C	2A
R110	A	C	3B
R111	A	C	3B
R112	B	C	2B
R113	A	C	4B
R114	A	C	3B
R115	A	C	4B
R116	A	C	2B
R117	A	C	2B
R118	A	C	3A
R119	B	C	3A
R120	A	C	2B
R121	B	C	4C
R122	A	C	3B
R123	B	C	1A
R124	A	C	3B
R125	B	C	3A
R126	B	C	3A
R127	A	C	3A
R128	B	C	4C
R129	B	C	4C
R130	B	C	4C
R131	A	C	3A
R132	A	C	7A
R133	A	C	7A
R134	A	C	7A
R135	B	C	3A
R136	A	C	2B
R137	B	C	3A
R138	A	C	2A
R139	A	C	3A
R140	A	C	2A
R141	B	C	1A
R142	B	C	2B
R143	B	C	2A
R144	B	C	2A
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R146	B	C	2B
R147	B	C	3A
R148	B	C	3A
R149	B	C	3A
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R151	B	C	3A
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R155	B	C	3A
R156	A	C	2A
R157	B	C	4A
R158	B	C	4A
R159	B	C	4A
R160	B	C	3B
R161	B	C	3B
R162	B	C	3B
R163	A	C	3B
R165	B	C	3A
R166	A	C	3A
R167	A	C	3A
R168	B	C	3A
R169	B	C	4B
R170	B	C	4B
R171	B	C	2B
R172	B	C	2B
R173	B	C	4B
R174	A	C	2A
R178	A	C	3A
R179	A	C	4A
R180	A	C	3A
R181	A	C	3A
R182	A	C	2B
R183	A	C	2B
R184	A	C	7A
R185	A	C	2A
R186	A	C	2B
R187	A	C	2A
R188	A	C	3A
R189	A	C	3A
R190	B	C	4B
R191	B	C	5C
R192	A	C	3A
R193	B	C	3B
R194	A	C	3B
R195	A	C	8C
R501	A	C	8C
R502	A	C	8C
R503	B	C	1B
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R1201	B	C	4C
R1202	B	C	4C
R1203	B	C	4D
R1204	B	C	4D
R1601	A	C	5E
R1602	A	C	5E
R1603	B	C	5E
R1604	B	C	5E
R1605	B	C	5E
R1606	B	C	4E
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R3007	A	C	6A
R3008	A	C	6A
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R3012	A	C	7B
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R3016	B	C	2B
R3017	B	C	2B
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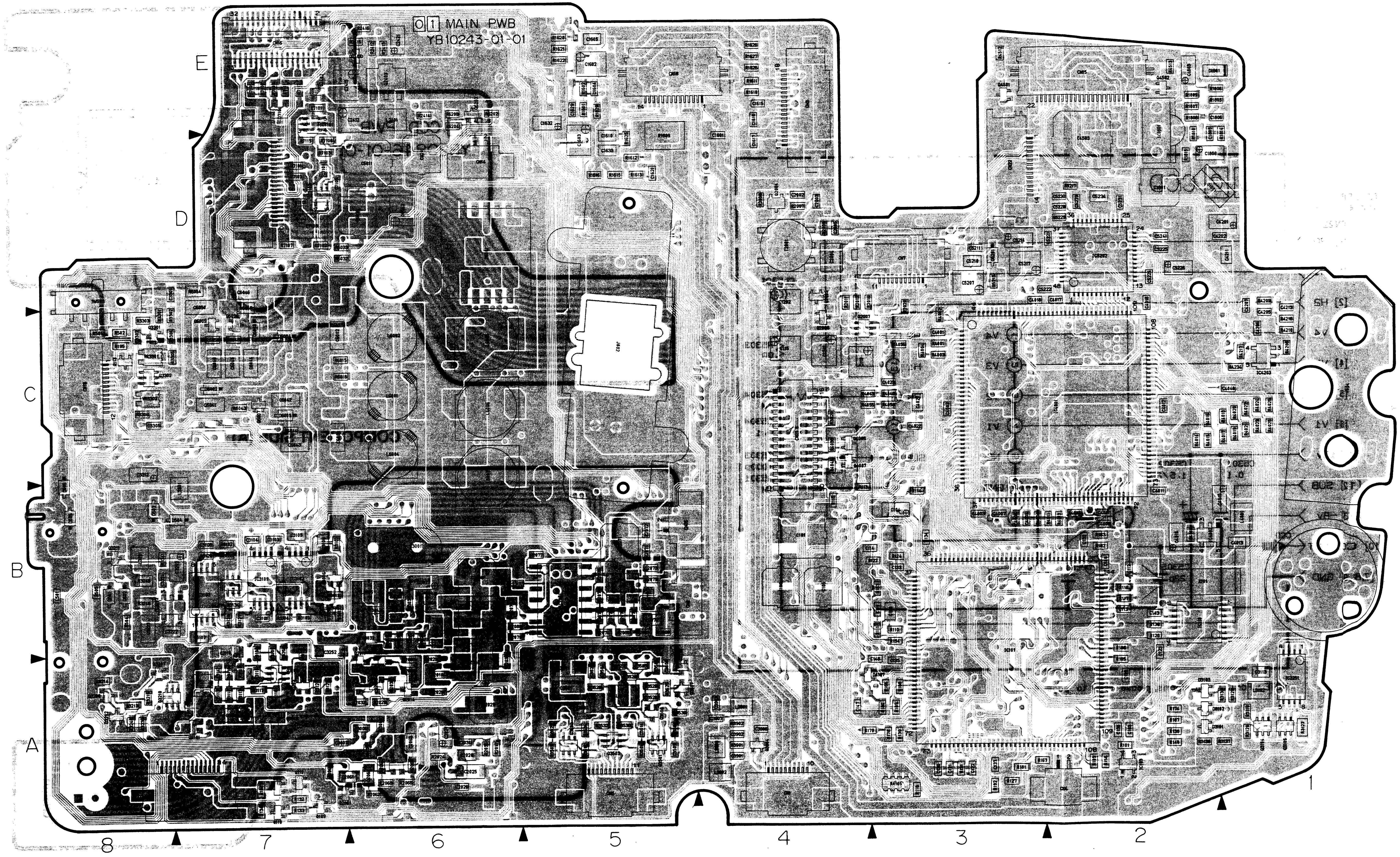
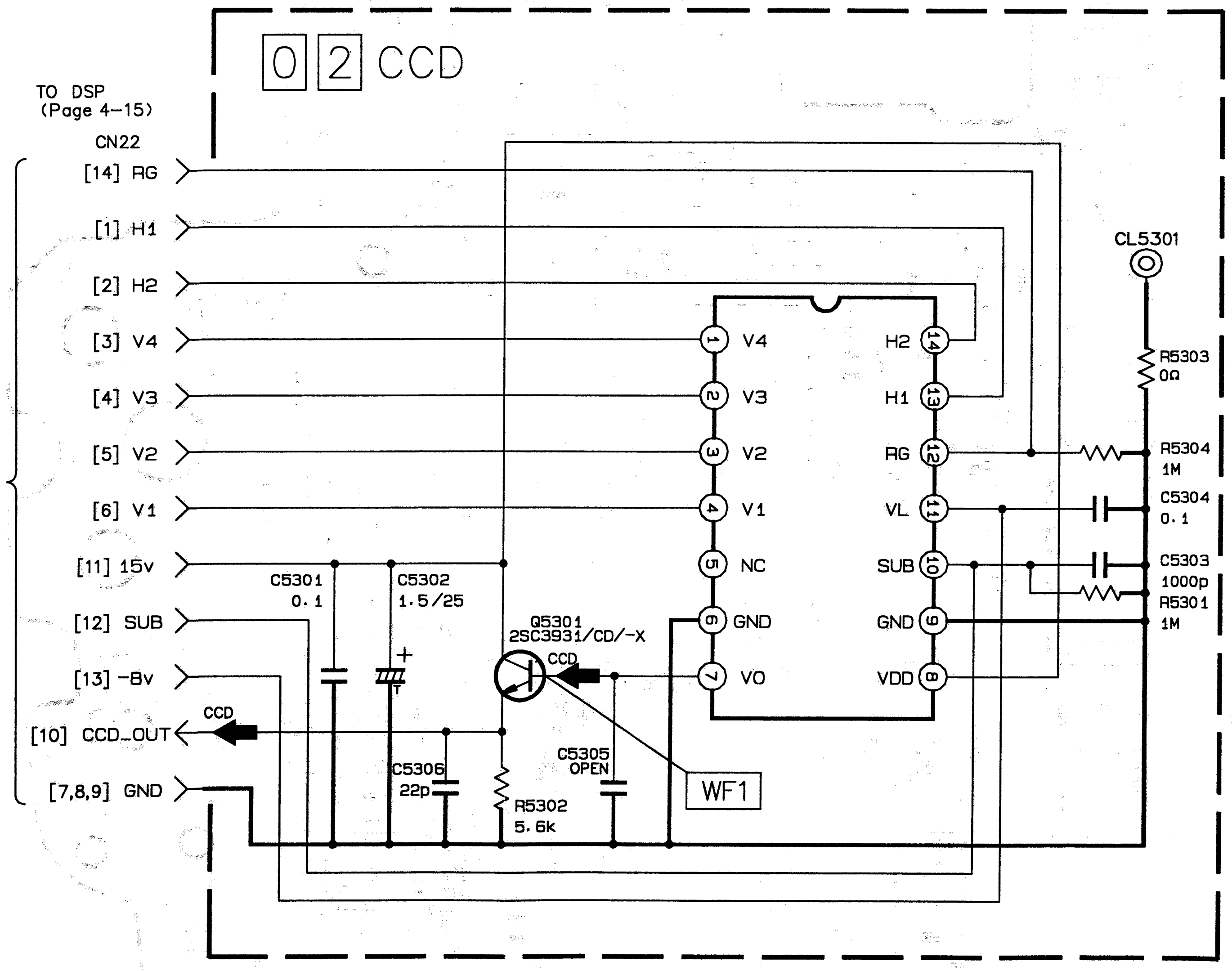
R3504	A	C	5A
R3506	A	C	5A
R3508	B	C	5A
R3509	A	C	5A
R3515	A	C	5A
R3519	B	C	5A
R3520	B	C	5A
R3525	A	C	5A
R3526	A	C	5A
R3527	A	C	5A
R3528	A	C	5A
R3529	A	C	5A
R3530	B	C	5A
R3531	B	C	5A
R3532	A	C	5A
R3533	A	C	5A
R3534	B	C	5A
R3535	B	C	5A
R3536	A	C	5A
R3901	A	C	4A
R3902	A	C	4A
R3903	B	C	4A
R3904	B	C	4A
R3905	B	C	4A
R3906	B	C	4A
R4001	A	C	3C
R4002	A	C	3C
R4003	A	C	3C
R4004	A	C	3C
R4005	B	C	3C
R4006	B	C	3B
R4007	B	C	3C
R4008	B	C	3B
R4009	B	C	3B
R4010	B	C	3B
R4011	A	C	2B
R4012	A	C	2B
R4013	A	C	2B
R4014	A	C	2C
R4015	A	C	2C
R4016	A	C	2C
R4017	A	C	1C
R4018	A	C	1C
R4019	A	C	1C
R4020	A	C	1C
R4021	A	C	1C
R4022	A	C	1C
R4023	A	C	1C
R4024	A	C	1C
R4025	A	C	1C
R4026	A	C	1C
R4027	B	C	3B
R4028	B	C	3C
R4038	B	C	3C
R4039	A	C	4C
R4040	A	C	4C
R4041	B	C	4C
R4042	A	C	3C
R4043	A	C	4C
R4051	B	C	3B
R4052	B	C	3C
R4053	B	C	3C
R4054	A	C	3C
R4055	A	C	4C
R4056	A	C	3C
R4057	B	C	4C
R4062	B	C	3B
R4201	B	C	1C
R4202	B	C	1C
R4203	B	C	1C
R4205	A	C	1C
R4206	B	C	1C
R4207	B	C	1C
R4208	B	C	1C
R4209	A	C	1C
R4210	A	C	1C
R4211	B	C	1C
R4214	B	C	1D
R4215	B	C	1D
R4216	A	C	1C
R4217	A	C	1C
R4218	B	C	1D
R4219	B	C	1D
R4223	B	C	3D
R4224	B	C	2D
R4225	B	C	1D
R4226	B	C	2D
R4227	B	C	2D
R4228	B	C	2D
R4229	B	C	3D
R4230	B	C	2D
R4231	B	C	2D
R4232	B	C	2D
R4233	B	C	2D
R4234	A	C	1C
R4501	B	C	2E
R4502	B	C	3E
R4503	B	C	2E
R4504	B	C	2E
R4505	B	C	2E
R4506	B	C	2E
R4507	B	C	2E
R4508	B	C	2E
R4509	B	C	2D
R4510	B	C	3D
R4511	B	C	3D
R4512	A	C	3E
R4513	A	C	2E
R4515	B	C	3D
R4516	B	C	3D
R5201	B	C	3C
R5202	B	C	3C
R5203	B	C	3C
R5204	B	C	2D
R5205	B	C	3C
R5207	B	C	3C
R5208	B	C	3C
R5209	B	C	3C
R5210	B	C	3D
R5211	B	C	3D
R5212	B	C	3D
R5213	A	C	3D
R5217	A	C	2D
R5228	B	C	2D
R5229	A	C	2D
R6001	B	C	6C
R6002	B	C	6C
R6003	B	C	7C
R6004	B	C	7C
R6005	B	C	7C
R6006	B	C	7C
R6007	B	C	7C
R6008	B	C	7C
R6009	B	C	7C
R6010	B	C	7C
R6011	B	C	7C
R6012	B	C	7C
R6013	B	C	7C
R6014	B	C	7C
R6015	A	C	7C
R6016	B	C	7C
R6017	B	C	7C
R6018	A	C	7C
R6019	B	C	7C
R6020	B	C	6C
R6021	B	C	6C
R6022	B	C	6C
R6023	B	C	6C
R6024	B	C	6C
R6025	B	C	6C
R6026	B	C	6C
R6027	B	C	6C
R6028	B	C	6C
R6029	B	C	6D
R6030	B	C	6D
R6031	B	C	6D
R6032	A	C	7D
R6033	A	C	7D
R6034	B	C	6C
R6035	B	C	6C
R6036	B	C	6C
R6037	B	C	6C
R6038	B	C	6C
R6039	B	C	6C
R6040	B	C	6C
R6041	B	C	6C
R6042	B	C	6D
R6043	A	C	7C
R6044	A	C	7C
R6045	A	C	7C
R6046	A	C	7D
R6047	B	C	5C
R6048	B	C	6D
R6049	B	C	5D
R6050	A	C	7C
R6052	B	C	7C
R6053	B	C	6C
R6054	A	C	7D
R6055	B	C	7C
R6056	B	C	7C
R6201	B	C	6E
R6202	A	C	6E
R6203	A	C	6E
R6204	A	C	6E
R6205	B	C	6D
R6206	B	C	6D
R7101	A	C	7D
R7102	A	C	7D
R7103	A	C	7D
R7104	B	C	7D
R7106	A	C	7D
R7107	A	C	7D
R7108	A	C	7E
R7109	A	C	7E
R7111	A	C	7E
R7112	A	C	7E
R7113	A	C	7D
R7115	A	C	7D
R7116	B	C	7D
R7117	B	C	7D
R7118	B	C	7D
RA101	B	C	2A
RA102	B	C	3B
RA103	B	C	2A
RA105	A	C	3A
RA107	B	C	4A
RA108	B	C	3B
VR3301	A	C	8C
VR3302	A	C	8C
OTHER			
F6001	B	C	5D
F6002	B	C	5C
F6003	B	C	7D
F6004	B	C	7D
F6005	B	C	6E
F7101	B	C	7D
FL3201	B	C	7A
J501	B	D	8B
J502	A	D	5C
J503	B	D	8A
J504	A	D	1C
J505	A	D	1B
SW503	A	C	8D
T2001	A	C	4D
T6001	A	C	6D
X101	A	C	2B
X102	B	C	1B
X3001	A	D	6B
X5201	B	C	3C

COMPONENT SIDE (A)


01 MAIN PWB
YB10243-01-01
E
D
C
B
A
8
7
6
5
4
3
2
1

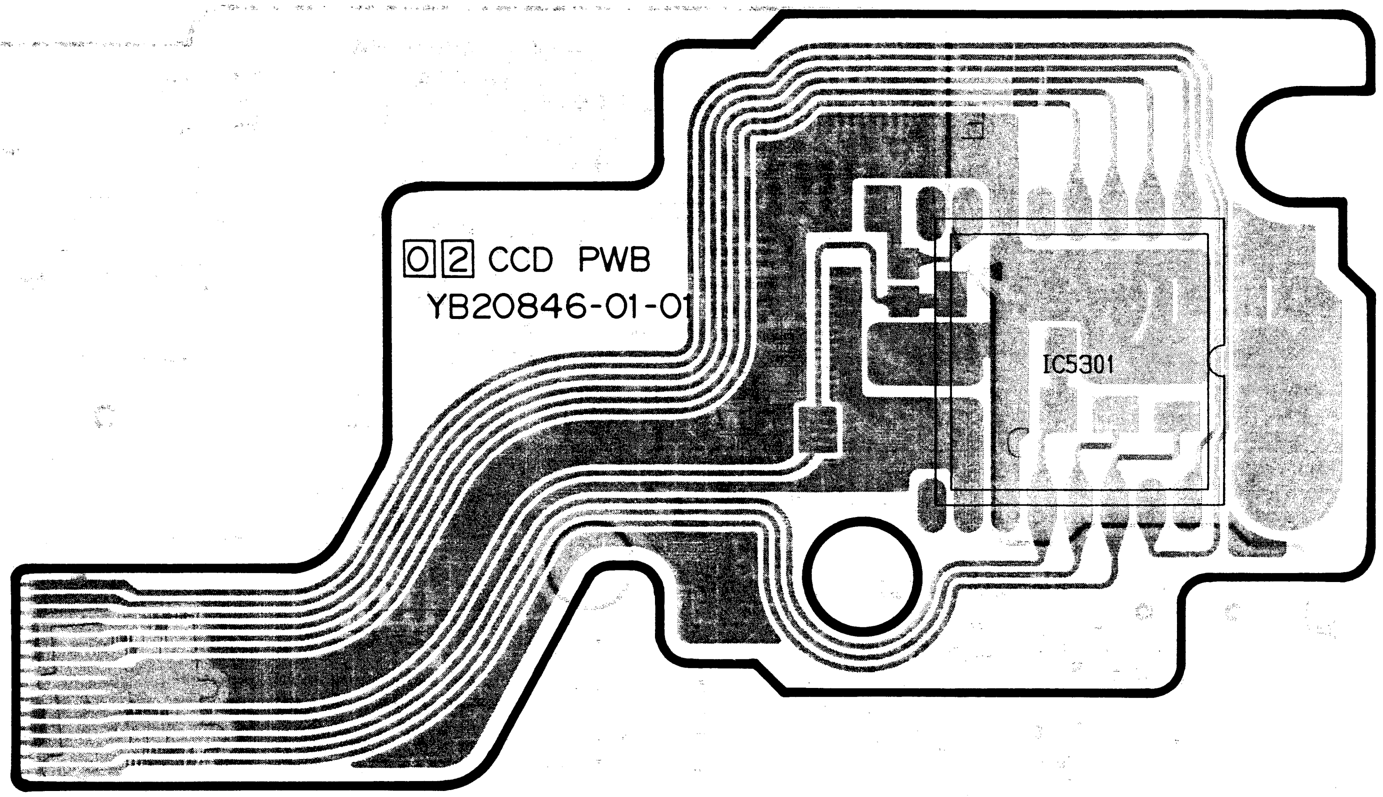
4.13 CCD SCHEMATIC DIAGRAM AND CCD CIRCUIT BOARD



5
4
3
2
1
A
B
C
D
02 CCD
TO DSP
(Page 4–15)
CN22
[14] RG
[1] H1
[2] H2
[3] V4
[4] V3
[5] V2
[6] V1
[11] 15v
[12] SUB
[13] –8v
CCD
[10] CCD_OUT
[7,8,9] GND
C5301
0.1
C5302
1.5/25
C5306
22p
R5302
5.6k
Q5301
2SC3931/CD/–X
CCD
C5305
OPEN
WF1
1 V4
2 V3
3 V2
4 V1
5 NC
6 GND
7 VO
H2 14
H1 13
RG 12
VL 11
SUB 10
GND 9
VDD 8
CL5301
R5303
0Ω
R5304
1M
C5304
0.1
C5303
1000p
R5301
1M

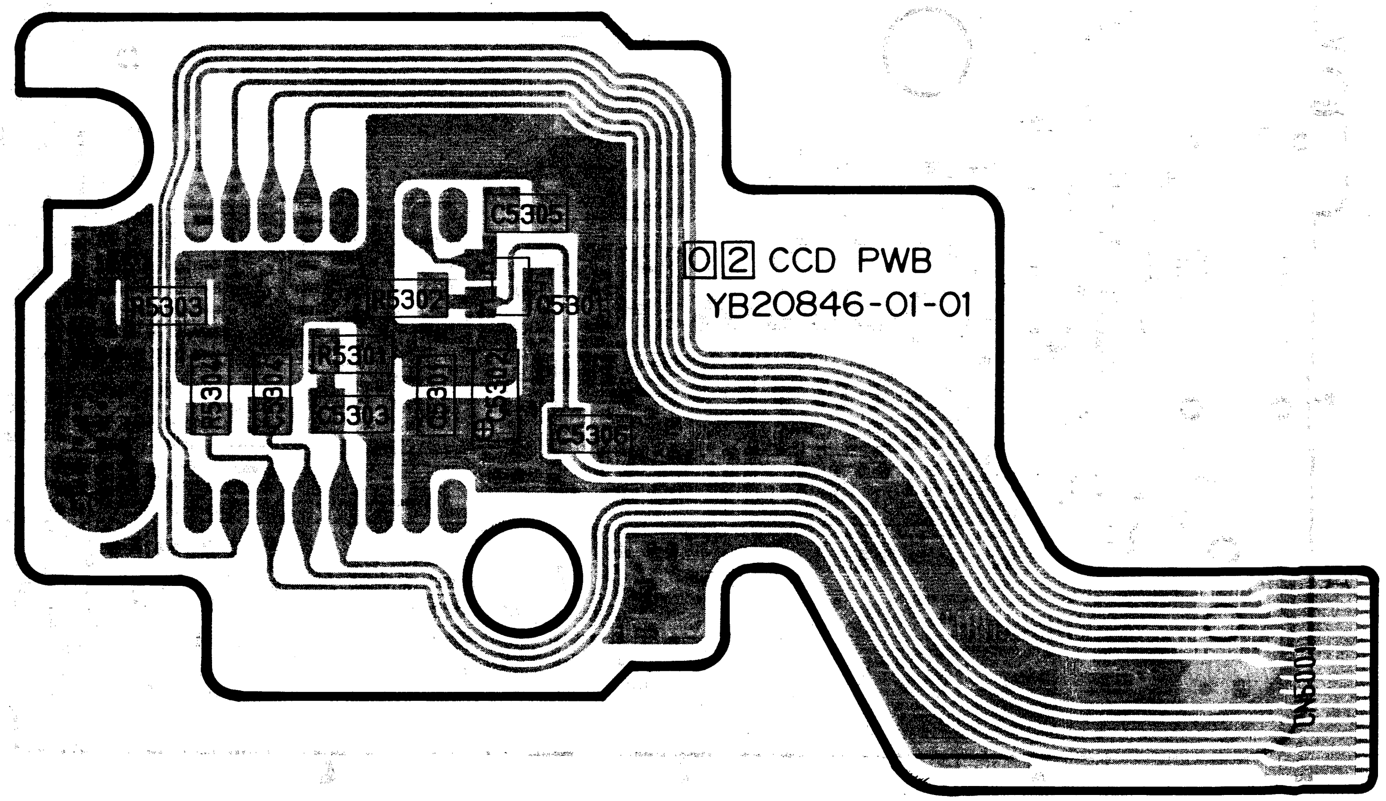
NOTE : For CCD waveforms, please refer to page 4–49.

FOIL SIDE (B)



02 CCD PWB
YB20846-01-01
IC5301

COMPONENT SIDE (A)

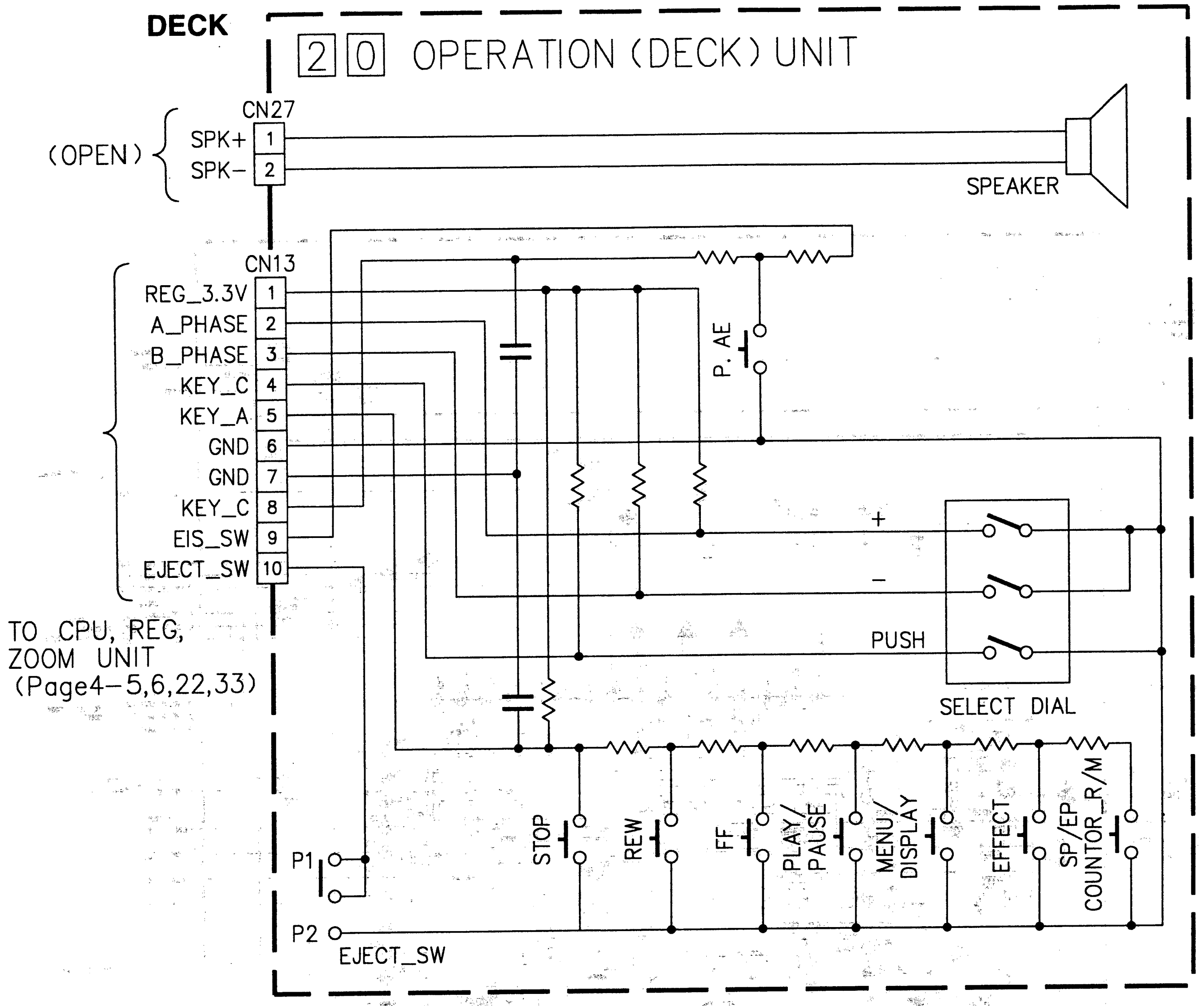


02 CCD PWB
YB20846-01-01
C5305
R5303
C5302
R5304
R5301
C5301
C5306
C5303
C5304
R5302
C5305

4.14 OPERATION (DECK) UNIT, ZOOM UNIT AND SENSOR SCHEMATIC DIAGRAMS

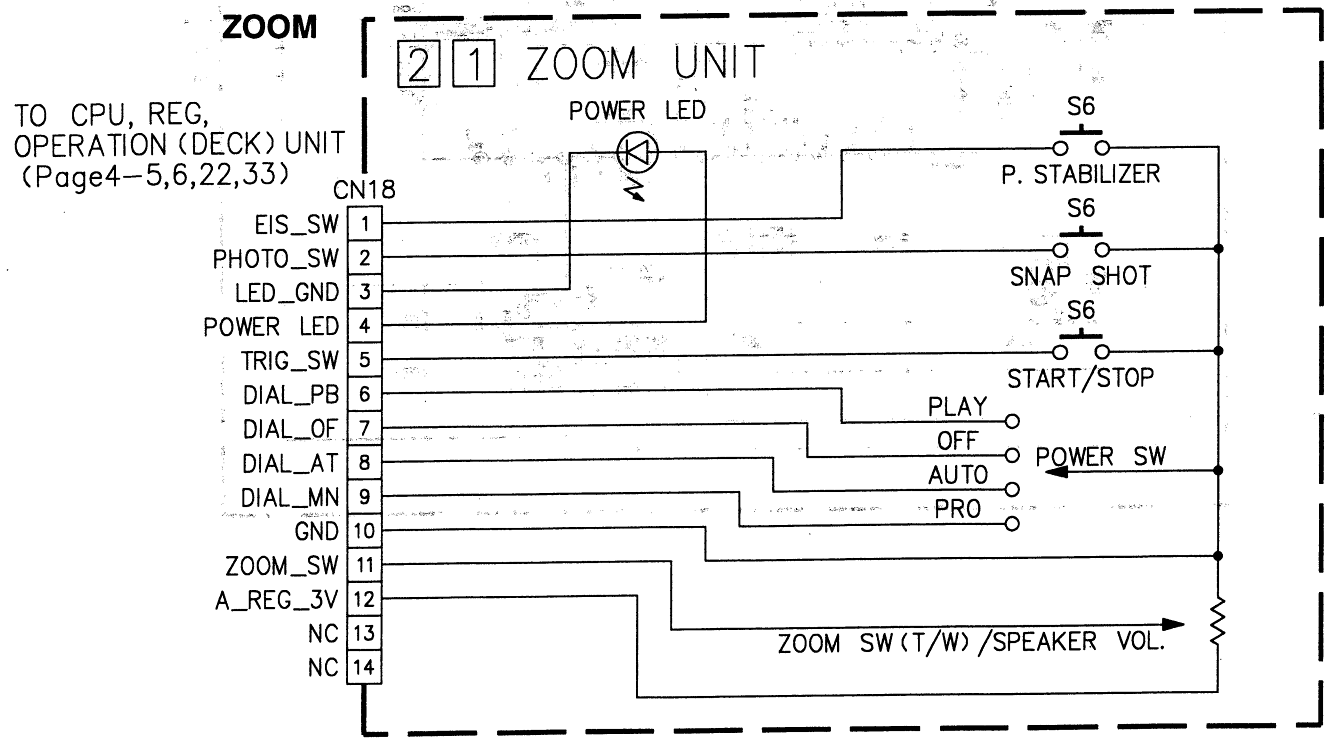
NOTE : The schematic diagrams are only for reference.
Avoid replacing individual parts.
Replace the entire unit only.

DECK



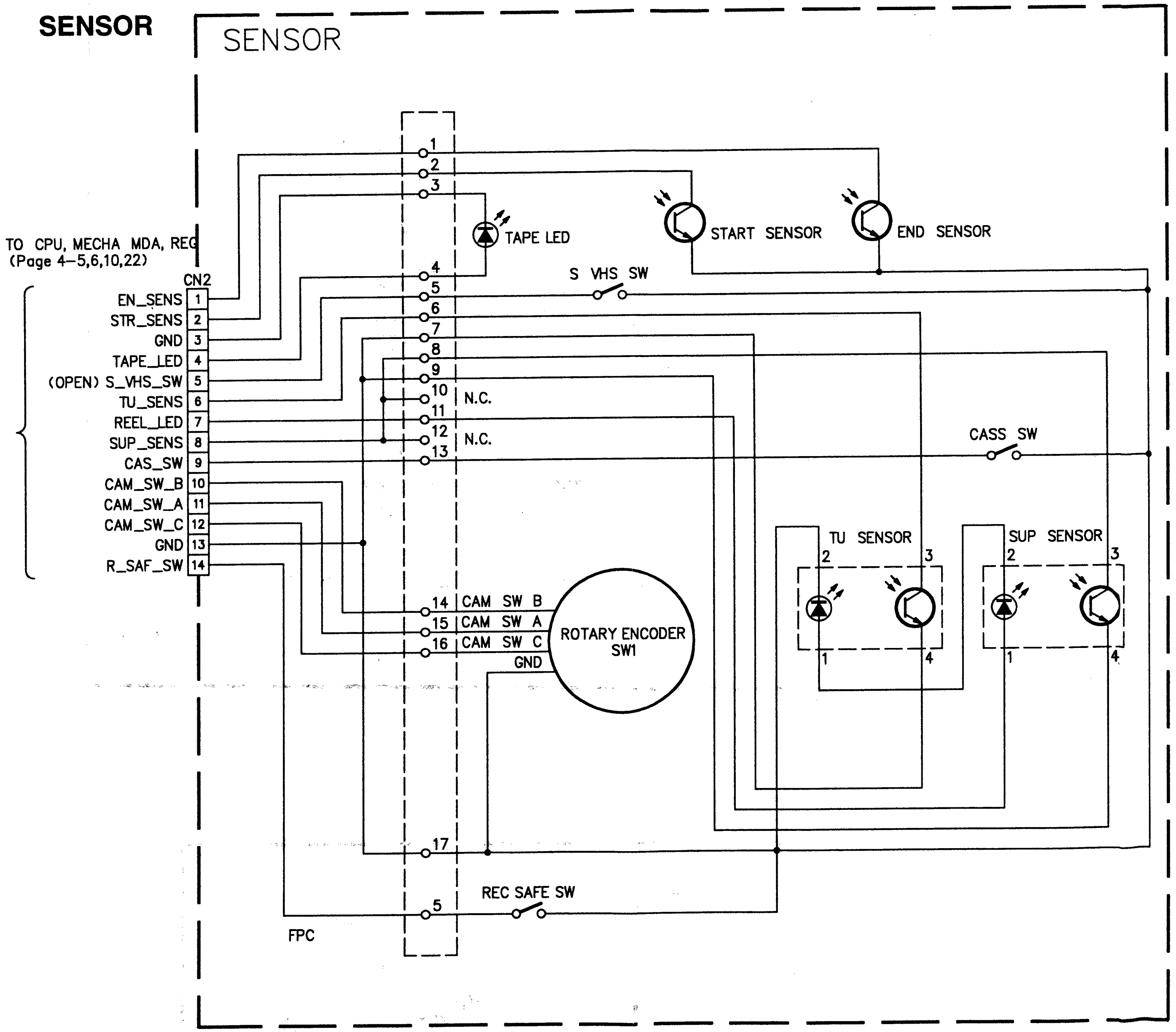
20 OPERATION (DECK) UNIT
CN27
(OPEN)
SPK+ 1
SPK− 2
SPEAKER
CN13
REG_3.3V 1
A_PHASE 2
B_PHASE 3
KEY_C 4
KEY_A 5
GND 6
GND 7
KEY_C 8
EIS_SW 9
EJECT_SW 10
TO CPU, REG, ZOOM UNIT (Page4−5,6,22,33)
P. AE
+
−
PUSH
SELECT DIAL
STOP
REW
FF
PLAY/PAUSE
MENU/DISPLAY
EFFECT
SP/EP
COUNTOR_R/M
P1
P2
EJECT_SW

ZOOM



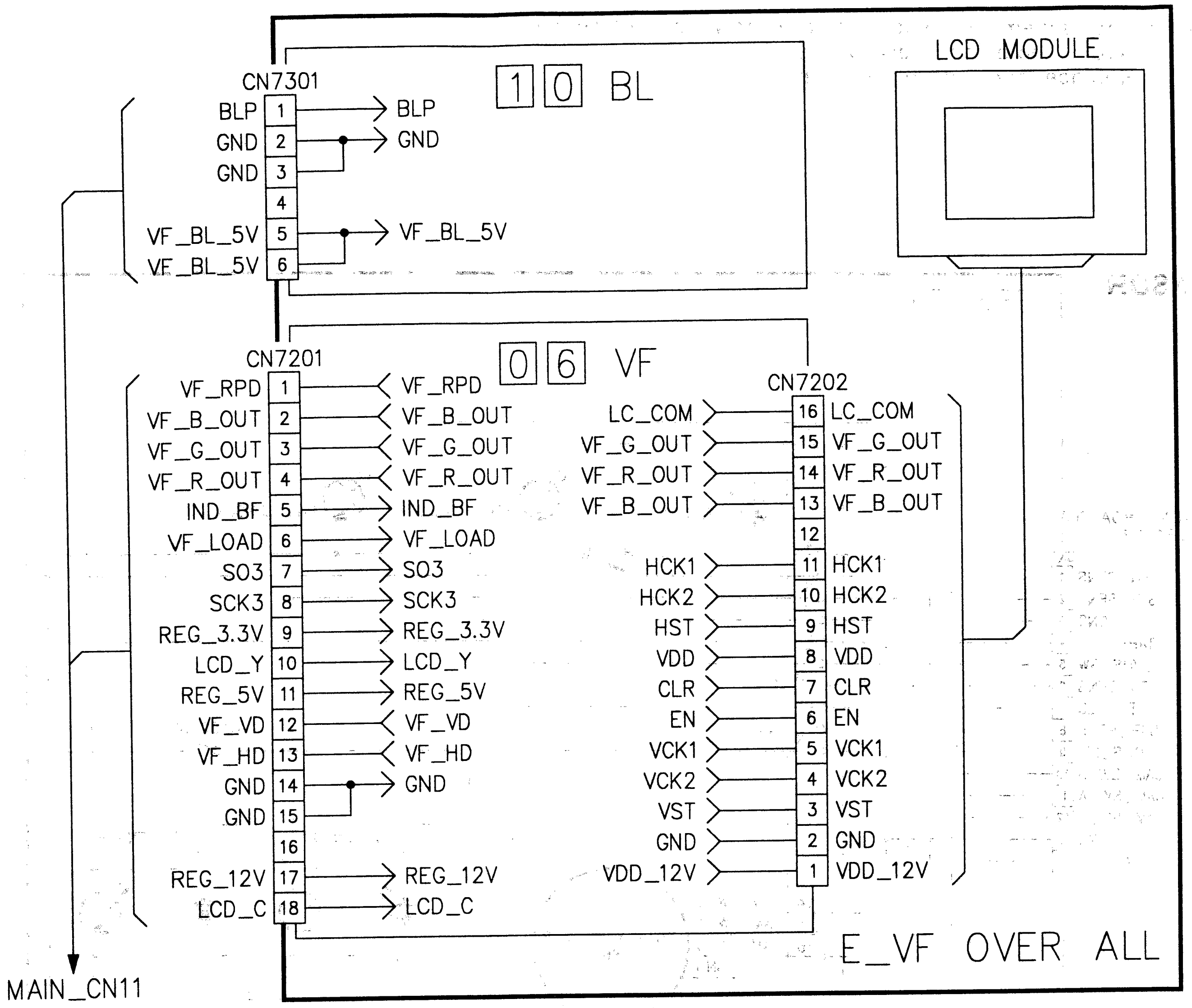
21 ZOOM UNIT
TO CPU, REG, OPERATION (DECK) UNIT (Page4−5,6,22,33)
CN18
EIS_SW 1
PHOTO_SW 2
LED_GND 3
POWER LED 4
TRIG_SW 5
DIAL_PB 6
DIAL_OF 7
DIAL_AT 8
DIAL_MN 9
GND 10
ZOOM_SW 11
A_REG_3V 12
NC 13
NC 14
POWER LED
S6
P. STABILIZER
S6
SNAP SHOT
S6
START/STOP
PLAY
OFF
AUTO
PRO
POWER SW
ZOOM SW (T/W) /SPEAKER VOL.

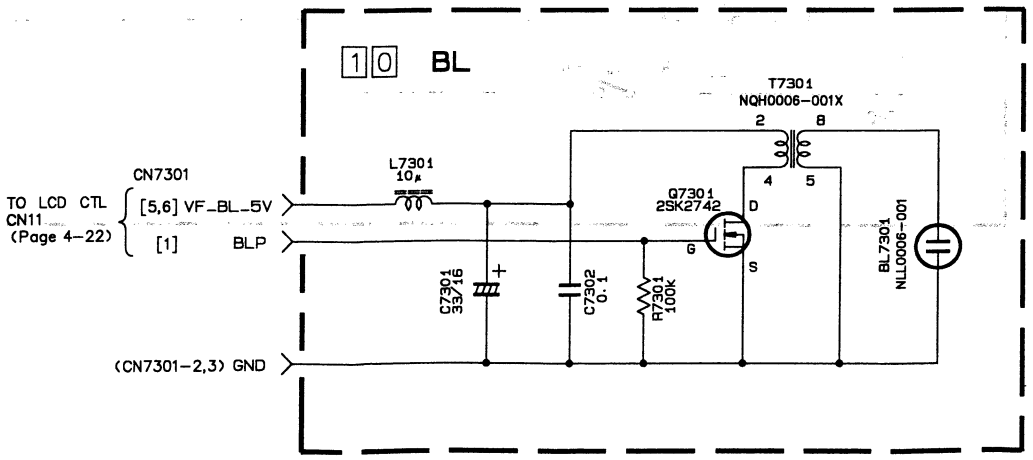
SENSOR

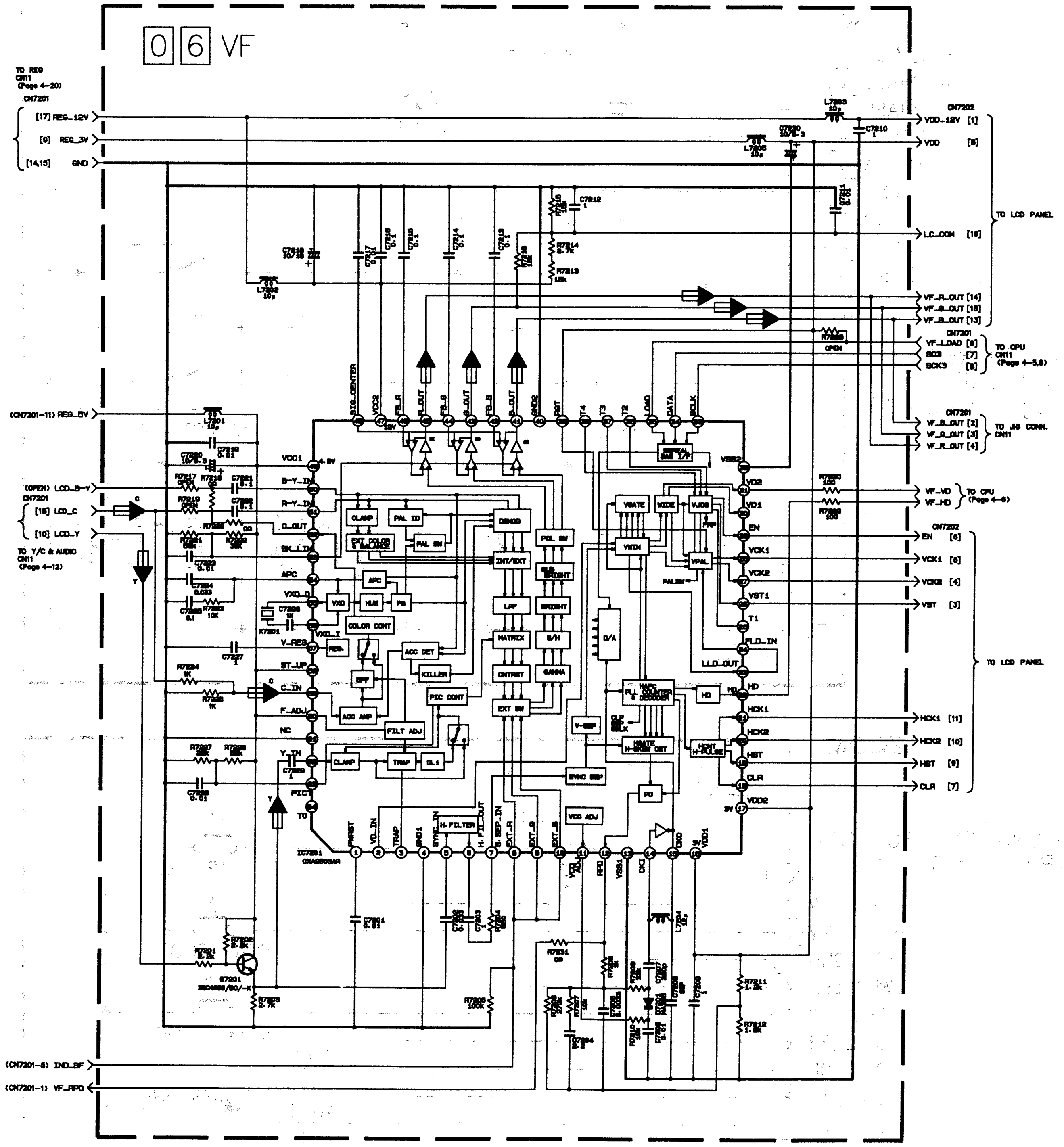


SENSOR
TO CPU, MECHA MDA, REG (Page 4−5,6,10,22)
CN2
EN_SENS 1
STR_SENS 2
GND 3
TAPE_LED 4
(OPEN) S_VHS_SW 5
TU_SENS 6
REEL_LED 7
SUP_SENS 8
CAS_SW 9
CAM_SW_B 10
CAM_SW_A 11
CAM_SW_C 12
GND 13
R_SAF_SW 14
1
2
3
TAPE LED
START SENSOR
END SENSOR
4
5
S VHS SW
6
7
8
9
10
N.C.
11
12
N.C.
13
CASS SW
TU SENSOR
SUP SENSOR
2
3
1
4
2
3
1
4
14 CAM SW B
15 CAM SW A
16 CAM SW C
GND
ROTARY ENCODER SW1
17
5
REC SAFE SW
FPC

4.15 ELECTRONIC VIEWFINDER SCHEMATIC DIAGRAM


CN7301
BLP 1 BLP
GND 2 GND
GND 3
4
VF_BL_5V 5 VF_BL_5V
VF_BL_5V 6
10 BL
LCD MODULE
CN7201
06 VF
VF_RPD 1 VF_RPD
VF_B_OUT 2 VF_B_OUT
VF_G_OUT 3 VF_G_OUT
VF_R_OUT 4 VF_R_OUT
IND_BF 5 IND_BF
VF_LOAD 6 VF_LOAD
SO3 7 SO3
SCK3 8 SCK3
REG_3.3V 9 REG_3.3V
LCD_Y 10 LCD_Y
REG_5V 11 REG_5V
VF_VD 12 VF_VD
VF_HD 13 VF_HD
GND 14 GND
GND 15
16
REG_12V 17 REG_12V
LCD_C 18 LCD_C
CN7202
LC_COM 16 LC_COM
VF_G_OUT 15 VF_G_OUT
VF_R_OUT 14 VF_R_OUT
VF_B_OUT 13 VF_B_OUT
12
HCK1 11 HCK1
HCK2 10 HCK2
HST 9 HST
VDD 8 VDD
CLR 7 CLR
EN 6 EN
VCK1 5 VCK1
VCK2 4 VCK2
VST 3 VST
GND 2 GND
VDD_12V 1 VDD_12V
E_VF OVER ALL
MAIN_CN11

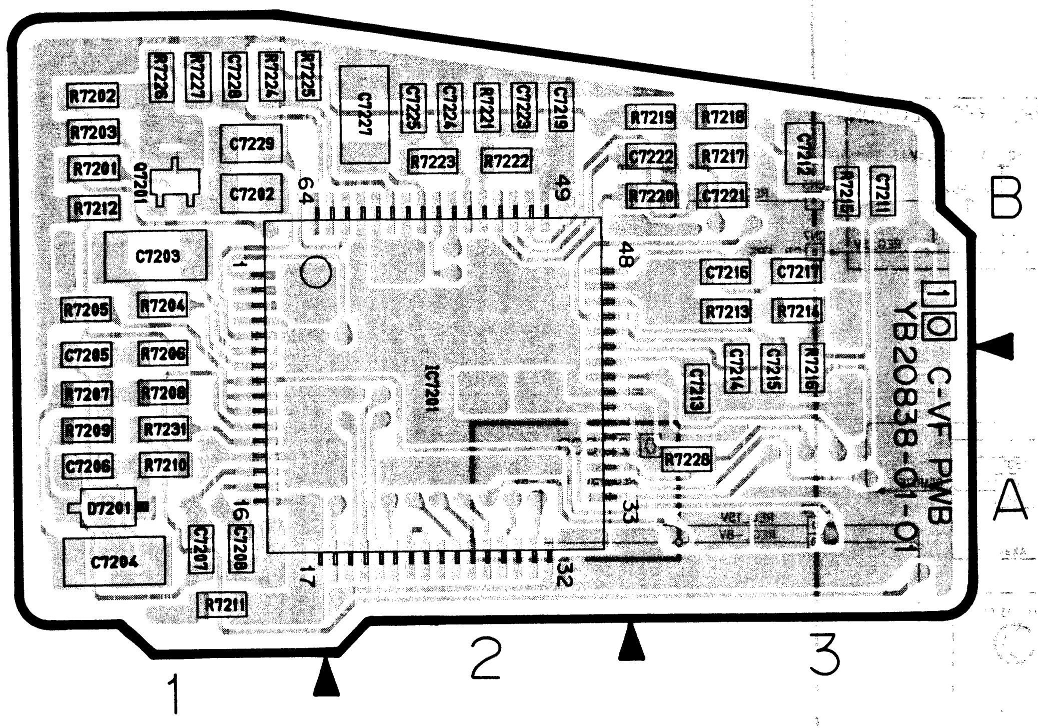

10 BL
T7301
NQH0006-001X
2 8
4 5
CN7301
TO LCD CTL CN11 (Page 4-22)
[5,6] VF_BL_5V
[1] BLP
L7301 10μ
Q7301 2SK2742
D G S
C7301 33/16
C7302 0.1
R7301 100k
BL7301 NLL0006-001
(CN7301-2,3) GND


06 VF
TO REG CN11 (Page 4-20)
CN7201
[17] REG_12V
[9] REG_3V
[14,15] GND
L7203 10μ
CN7202
VDD_12V [1]
VDD [8]
C7210 1
C7220 10/6.3
L7205 10μ
C7211 0.01
C7212 1
R7215 15K
R7214 2.7K
R7213 15K
C7218 10/16
C7217 0.01
C7216 0.1
C7215 0.1
C7214 0.1
C7213 0.1
R7216 15K
L7202 10μ
TO LCD PANEL
LC_COM [16]
VF_R_OUT [14]
VF_G_OUT [15]
VF_B_OUT [13]
CN7201
VF_LOAD [6]
SO3 [7]
SCK3 [8]
TO CPU CN11 (Page 4-5,6)
R7226 OPEN
CN7201
VF_B_OUT [2]
VF_G_OUT [3]
VF_R_OUT [4]
TO JIG CONN. CN11
(CN7201-11) REG_5V
L7201 10μ
C7219 0.01
SIG_CENTER
VCC2
FB_R
R_OUT
FB_G
G_OUT
FB_B
B_OUT
GND2
RST
T4
T3
T2
LOAD
DATA
SCLK
SERIAL BUS I/F
VCC1
B-Y_IN
R-Y_IN
C_OUT
BK_LIM
APC
VXO_O
VXO_I
V_REG
ST_UP
C_IN
F_ADJ
NC
Y_IN
PIC
TO
(OPEN) LCD_B-Y
CN7201
[16] LCD_C
[10] LCD_Y
TO Y/C & AUDIO CN11 (Page 4-12)
R7217 OPEN
R7218 0Ω
R7219 OPEN
R7221 56K
R7222 39K
C7221 0.1
C7222 0.1
C7223 0.01
C7224 0.033
C7225 0.1
R7223 10K
C7226 1K
X7201
C7227 1
R7224 1K
R7225 1K
R7227 22K
R7228 22K
C7229 1
C7228 0.01
CLAMP
PAL ID
DEMOD
EXT COLOR & BALANCE
PAL SW
INT/EXT
APC
VXO
HUE
PS
COLOR CONT
REG.
ACC DET
KILLER
BPF
ACC AMP
PIC CONT
FILT ADJ
TRAP
DL1
POL SW
SUB BRIGHT
LPF
BRIGHT
MATRIX
S/H
CNTRST
GAMMA
EXT SW
D/A
VGATE
WIDE
VJDG
VWIN
VPAL
PALSW
V-SEP
SYNC SEP
HAFC PLL COUNTER & DECODER
HGATE H-SKEW DET
HD
HCNT H-PULSE
PD
VCO ADJ
VSS2
VD2
VD1
EN
VCK1
VCK2
VST1
T1
FLD_IN
LLD_OUT
HD
HCK1
HCK2
HST
CLR
VDD2
R7220 100
R7229 100
VF_VD
VF_HD
TO CPU (Page 4-6)
CN7202
EN [6]
VCK1 [5]
VCK2 [4]
VST [3]
HCK1 [11]
HCK2 [10]
HST [9]
CLR [7]
TO LCD PANEL
PWRST
VD_IN
TRAP
GND1
SYNC_IN
H.FILTER
H.FIL_OUT
S.SEP_IN
EXT_R
EXT_G
EXT_B
VCO ADJ
RPD
VSS1
CKI
CKO
VDD1
IC7201 CXA2503AR
C7201 0.01
C7203 1
R7204
R7205 100K
R7231 0Ω
R7208 1K
R7211 1.8K
R7212 1.8K
L7204
C7204 2.2
R7201 2.2K
R7202 2.2K
Q7201 2SC4655/BC/-X
R7203 2.7K
(CN7201-5) IND_BF
(CN7201-1) VF_RPD

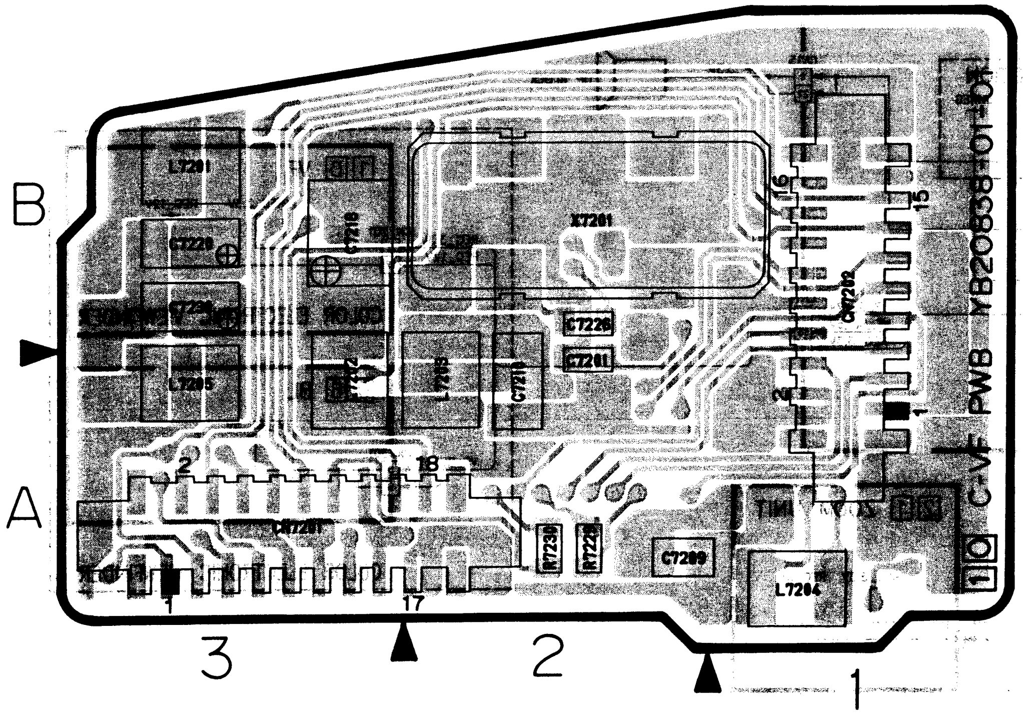
4.16 ELECTRONIC VIEWFINDER CIRCUIT BOARD

<VF>

FOIL SIDE (B)


10 C-VF PWB
YB20838-01-01
B
A
1
2
3
IC7201
Q7201
D7201
64
49
48
33
32
17
16
1

COMPONENT SIDE (A)


10 C-VF PWB YB20838-01-01
B
A
3
2
1
L7201
L7204
L7205
X7201
CN7201
CN7202
C7209
17
18
2
1
16
15

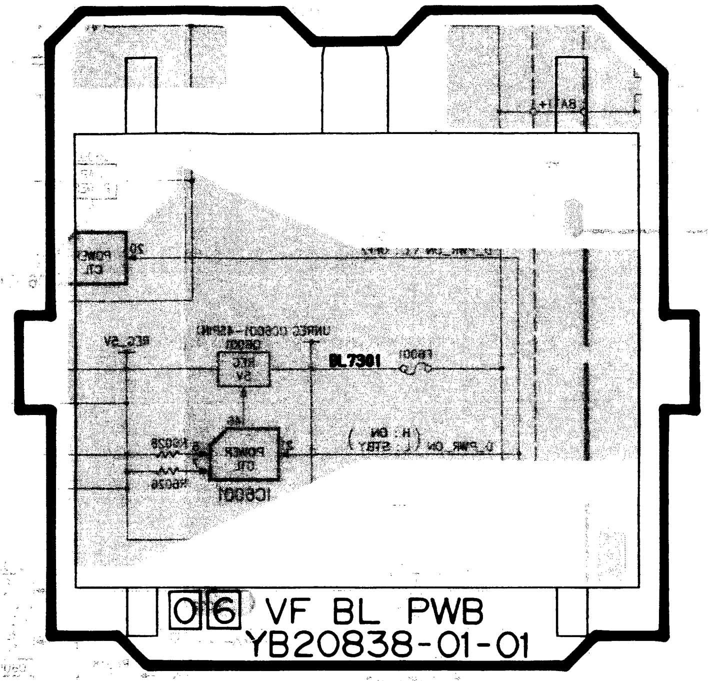
COMPONENT PARTS LOCATION GUIDE (VF)

REF.No.	LOCATION		
CAPACITOR			
C7201	A	C	2A
C7202	B	C	1B
C7203	B	C	1B
C7204	B	C	1A
C7205	B	C	1B
C7206	B	C	1A
C7207	B	C	1A
C7208	B	C	1A
C7209	A	C	2A
C7210	A	C	2A
C7211	B	C	3B
C7212	B	C	3B
C7213	B	C	3A
C7214	B	C	3A
C7215	B	C	3A
C7216	B	C	3B
C7217	B	C	3B
C7218	A	C	3B
C7219	B	C	2B
C7220	A	C	3B
C7221	B	C	3B
C7222	B	C	3B
C7223	B	C	2B
C7224	B	C	2B
C7225	B	C	2B
C7226	A	C	2B
C7227	B	C	2B
C7228	B	C	1B
C7229	B	C	1B
C7230	A	C	3B
CONNECTOR			
CN7201	A	C	3A
CN7202	A	C	1A
DIODE			
D7201	B	C	1A
IC			
IC7201	B	C	2A
COIL			
L7201	A	C	3B
L7202	A	C	3A
L7203	A	C	2A
L7204	A	C	1A
L7205	A	C	3A

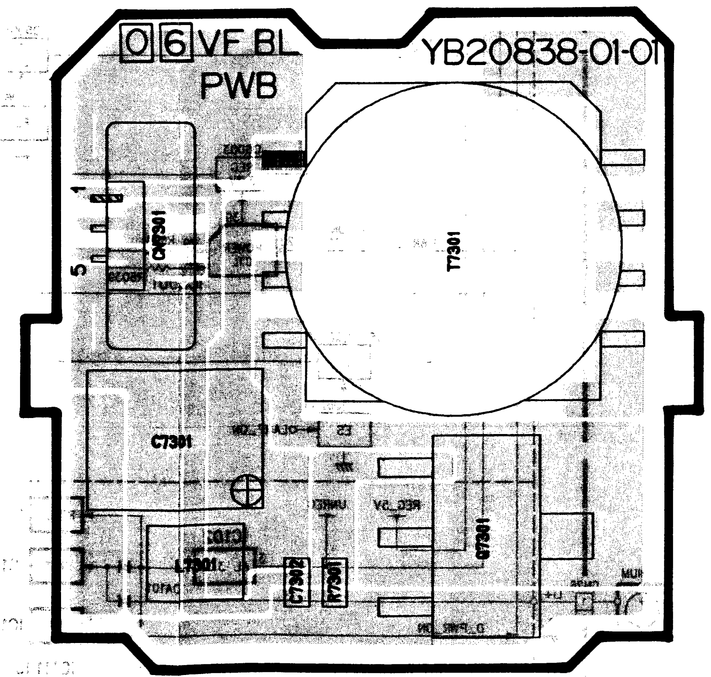
REF.No.	LOCATION		
TRANSISTOR			
Q7201	B	C	1B
RESISTOR			
R7201	B	C	1B
R7202	B	C	1B
R7203	B	C	1B
R7204	B	C	1B
R7205	B	C	1B
R7206	B	C	1B
R7207	B	C	1A
R7208	B	C	1A
R7209	B	C	1A
R7210	B	C	1A
R7211	B	C	1A
R7212	B	C	1B
R7213	B	C	3B
R7214	B	C	3B
R7215	B	C	3B
R7216	B	C	3A
R7217	B	C	3B
R7218	B	C	3B
R7219	B	C	3B
R7220	B	C	3B
R7221	B	C	2B
R7222	B	C	2B
R7223	B	C	2B
R7224	B	C	1B
R7225	B	C	1B
R7226	B	C	1B
R7227	B	C	1B
R7228	B	C	3A
R7229	A	C	2A
R7230	A	C	2A
R7231	B	C	1A
OTHER			
X7201	A	C	2B

<BL>

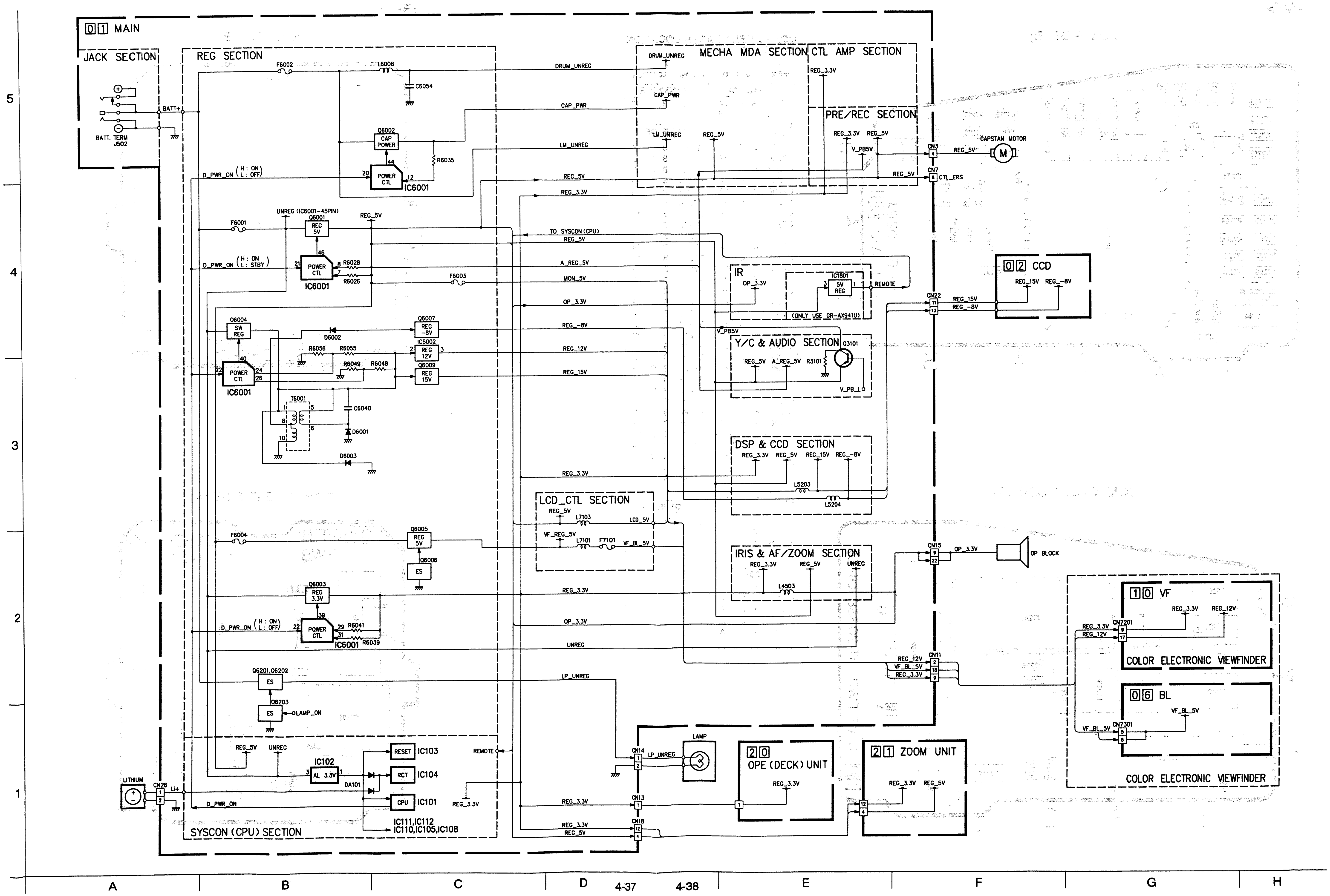
FOIL SIDE (B)


06 VF BL PWB
YB20838-01-01
BL7301
IC8001

COMPONENT SIDE (A)

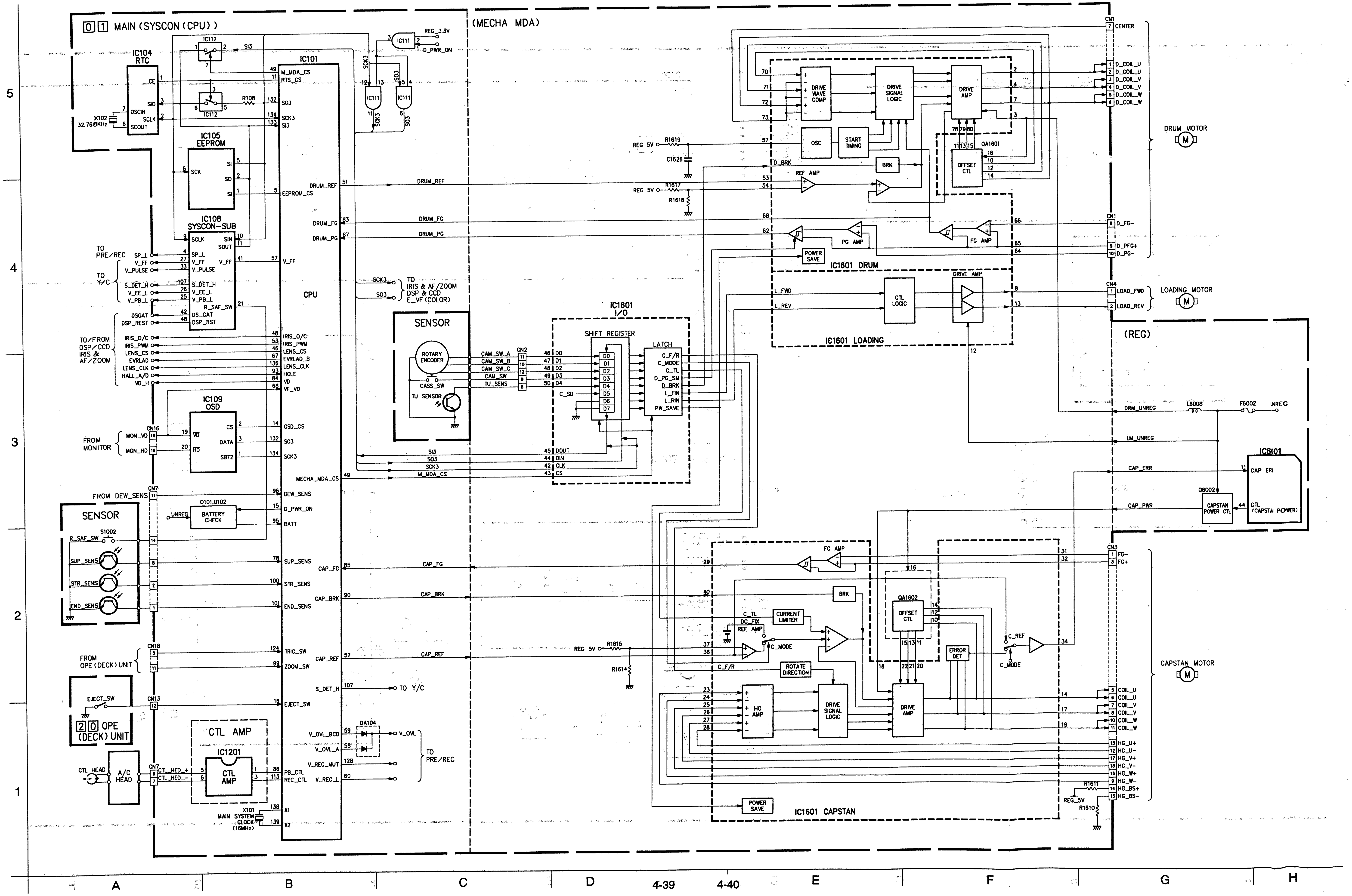

06 VF BL PWB
YB20838-01-01
T7301
CN7301
C7301
Q7301
1
5

4.17 POWER SYSTEM BLOCK DIAGRAM



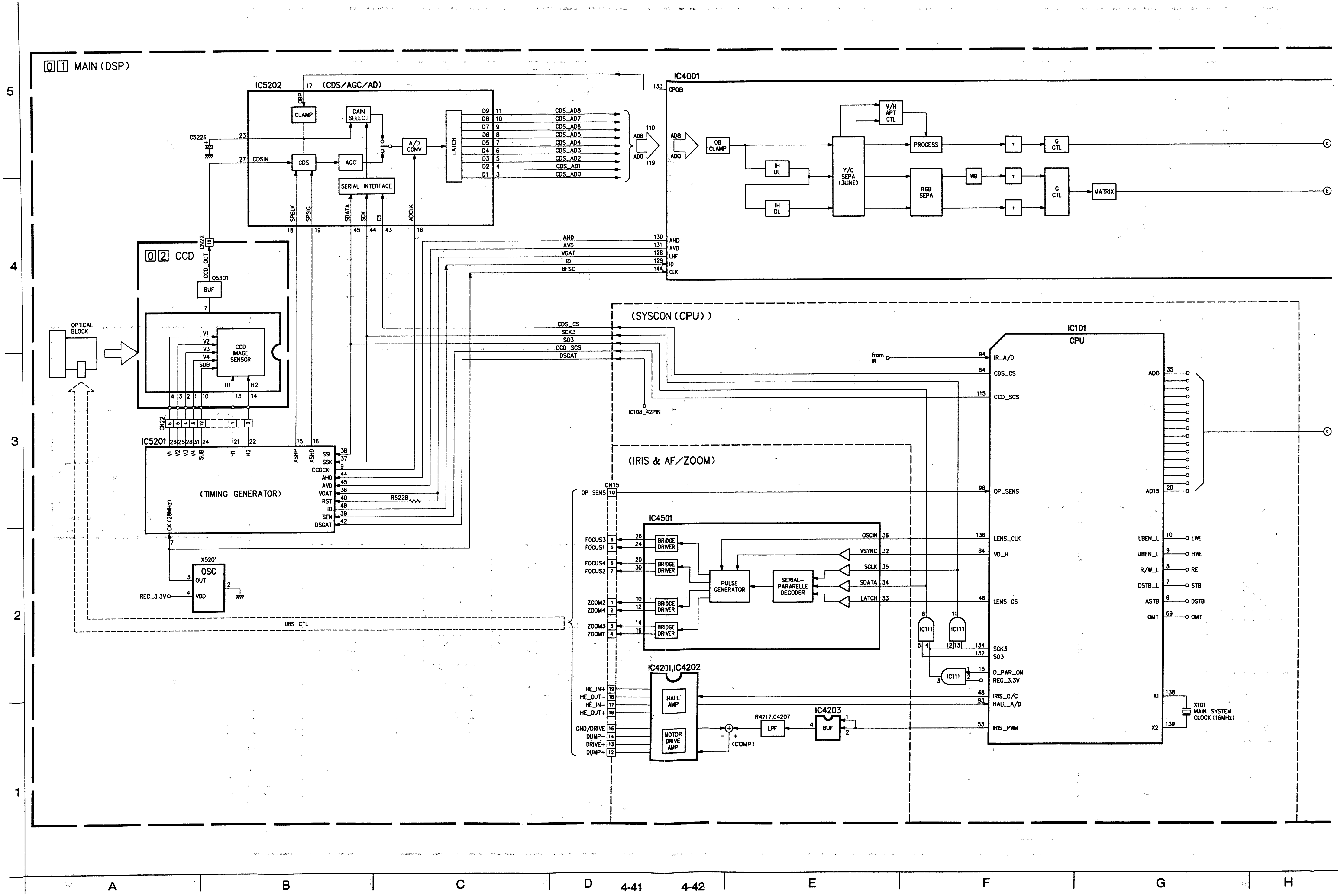
01 MAIN
JACK SECTION
BATT. TERM J502
BATT+
REG SECTION
F6002
L6008
C6054
DRUM_UNREG
CAP_PWR
Q6002 CAP POWER
R6035
LM_UNREG
D_PWR_ON (H : ON L : OFF)
POWER CTL
IC6001
REG_5V
REG_3.3V
UNREG (IC6001-45PIN)
Q6001 REG 5V
F6001
TO SYSCON (CPU)
D_PWR_ON (H : ON L : STBY)
R6028
R6026
F6003
A_REG_5V
MON_5V
OP_3.3V
Q6004 SW REG
D6002
Q6007 REG -8V
REG_-8V
IC6002 REG 12V
REG_12V
R6056
R6055
R6049
R6048
Q6009 REG 15V
REG_15V
T6001
C6040
D6001
D6003
F6004
Q6005 REG 5V
Q6006 ES
Q6003 REG 3.3V
R6041
R6039
UNREG
LP_UNREG
Q6201,Q6202 ES
Q6203 ES
LAMP_ON
SYSCON (CPU) SECTION
IC102 AL 3.3V
DA101
RESET IC103
RCT IC104
CPU IC101
IC111,IC112 IC110,IC105,IC108
REMOTE
LITHIUM
CN26
LI+
D_PWR_ON
MECHA MDA SECTION
CTL AMP SECTION
PRE/REC SECTION
V_PB5V
CN3
CAPSTAN MOTOR
CN7
CTL_ERS
LCD_CTL SECTION
L7103
LCD_5V
VF_REG_5V
L7101
F7101
VF_BL_5V
IR
IC1801 5V REG
(ONLY USE GR-AX941U)
Y/C & AUDIO SECTION
Q3101
R3101
V_PB_L
DSP & CCD SECTION
L5203
L5204
IRIS & AF/ZOOM SECTION
L4503
02 CCD
CN22
CN15
OP BLOCK
CN11
REG_12V
VF_BL_5V
CN14
LAMP
CN13
CN18
20 OPE (DECK) UNIT
21 ZOOM UNIT
10 VF
CN7201
COLOR ELECTRONIC VIEWFINDER
06 BL
CN7301
A B C D E F G H
1 2 3 4 5

4.18 CPU/MDA BLOCK DIAGRAM

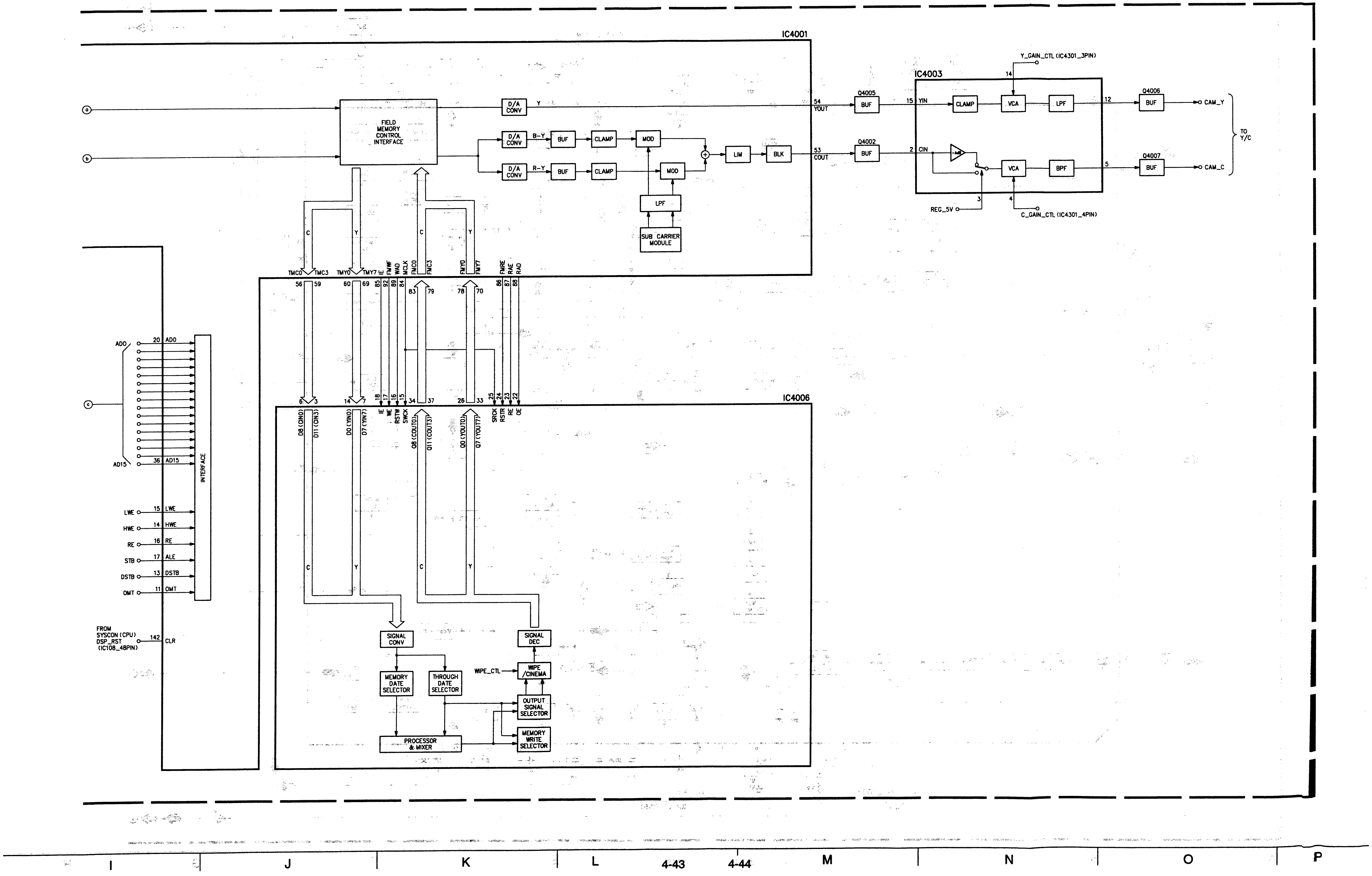


0 1 MAIN (SYSCON (CPU))
(MECHA MDA)
IC104 RTC
CE
SIO
OSCIN
SCLK
SCOUT
X102 32.768KHz
IC112
SI3
IC101
M_MDA_CS
RTS_CS
R108
SO3
SCK3
IC111
REG_3.3V
D_PWR_ON
IC105 EEPROM
SCK
SI
SO
EEPROM_CS
IC108 SYSCON-SUB
SCLK
SIN
SOUT
SP_L
V_FF
V_PULSE
S_DET_H
V_EE_L
V_PB_L
R_SAF_SW
DS_GAT
DSP_RST
TO PRE/REC
TO Y/C
DSGAT
DSP_REST
TO/FROM DSP/CCD IRIS & AF/ZOOM
IRIS_O/C
IRIS_PWM
LENS_CS
EVRLAD
EVRLAD_B
LENS_CLK
HALL_A/D
HOLE
VD_H
VD
VF_VD
CPU
DRUM_REF
DRUM_FG
DRUM_PG
TO IRIS & AF/ZOOM DSP & CCD E_VF (COLOR)
IC109 OSD
CS
DATA
SBT2
OSD_CS
FROM MONITOR
MON_VD
MON_HD
CN16
MECHA_MDA_CS
FROM DEW_SENS
DEW_SENS
Q101,Q102
UNREG
BATTERY CHECK
D_PWR_ON
BATT
SENSOR
S1002
R_SAF_SW
SUP_SENS
STR_SENS
END_SENS
CAP_FG
CAP_BRK
CN7
CN18
FROM OPE (DECK) UNIT
TRIG_SW
ZOOM_SW
CAP_REF
S_DET_H
TO Y/C
CN13
EJECT_SW
2 0 OPE (DECK) UNIT
CTL AMP
IC1201
CTL HEAD
A/C HEAD
CTL_HED_+
CTL_HED_-
PB_CTL
REC_CTL
V_OVL_BCD
V_OVL_A
V_REC_MUT
V_REC_L
DA104
V_OVL
TO PRE/REC
X101 MAIN SYSTEM CLOCK (16MHz)
X1
X2
SENSOR
ROTARY ENCODER
CASS_SW
TU SENSOR
CN2
CAM_SW_A
CAM_SW_B
CAM_SW_C
CAM_SW
TU_SENS
IC1601 I/O
SHIFT REGISTER
LATCH
D0
D1
D2
D3
D4
D5
D6
D7
C_SD
C_F/R
C_MODE
C_TL
D_PG_SM
D_BRK
L_FIN
L_RIN
PW_SAVE
DOUT
DIN
CLK
CS
M_MDA_CS
DRIVE WAVE COMP
DRIVE SIGNAL LOGIC
DRIVE AMP
OSC
START TIMING
BRK
REF AMP
OFFSET CTL
QA1601
REG 5V
R1619
C1626
R1617
R1618
D_BRK
PG AMP
FG AMP
POWER SAVE
IC1601 DRUM
CN1
CENTER
D_COIL_U
D_COIL_V
D_COIL_W
DRUM MOTOR
D_FG-
D_PFG+
D_PG-
L_FWD
L_REV
CTL LOGIC
DRIVE AMP
IC1601 LOADING
CN4
LOAD_FWD
LOAD_REV
LOADING MOTOR
(REG)
DRM_UNREG
L6008
F6002
UNREG
LM_UNREG
IC6001
CAP_ERR
CAP ERR
CAP_PWR
Q6002
CAPSTAN POWER CTL
CTL (CAPSTAN POWER)
FG AMP
QA1602
OFFSET CTL
CURRENT LIMITER
C_TL
DC_FIX
REF AMP
C_MODE
C_REF
C_F/R
ROTATE DIRECTION
ERROR DET
R1615
R1614
HG AMP
DRIVE SIGNAL LOGIC
DRIVE AMP
POWER SAVE
IC1601 CAPSTAN
CN3
FG-
FG+
COIL_U
COIL_V
COIL_W
HG_U+
HG_U-
HG_V+
HG_V-
HG_W+
HG_W-
HG_BS+
HG_BS-
R1611
REG_5V
R1610
CAPSTAN MOTOR
A
B
C
D
E
F
G
H
1
2
3
4
5

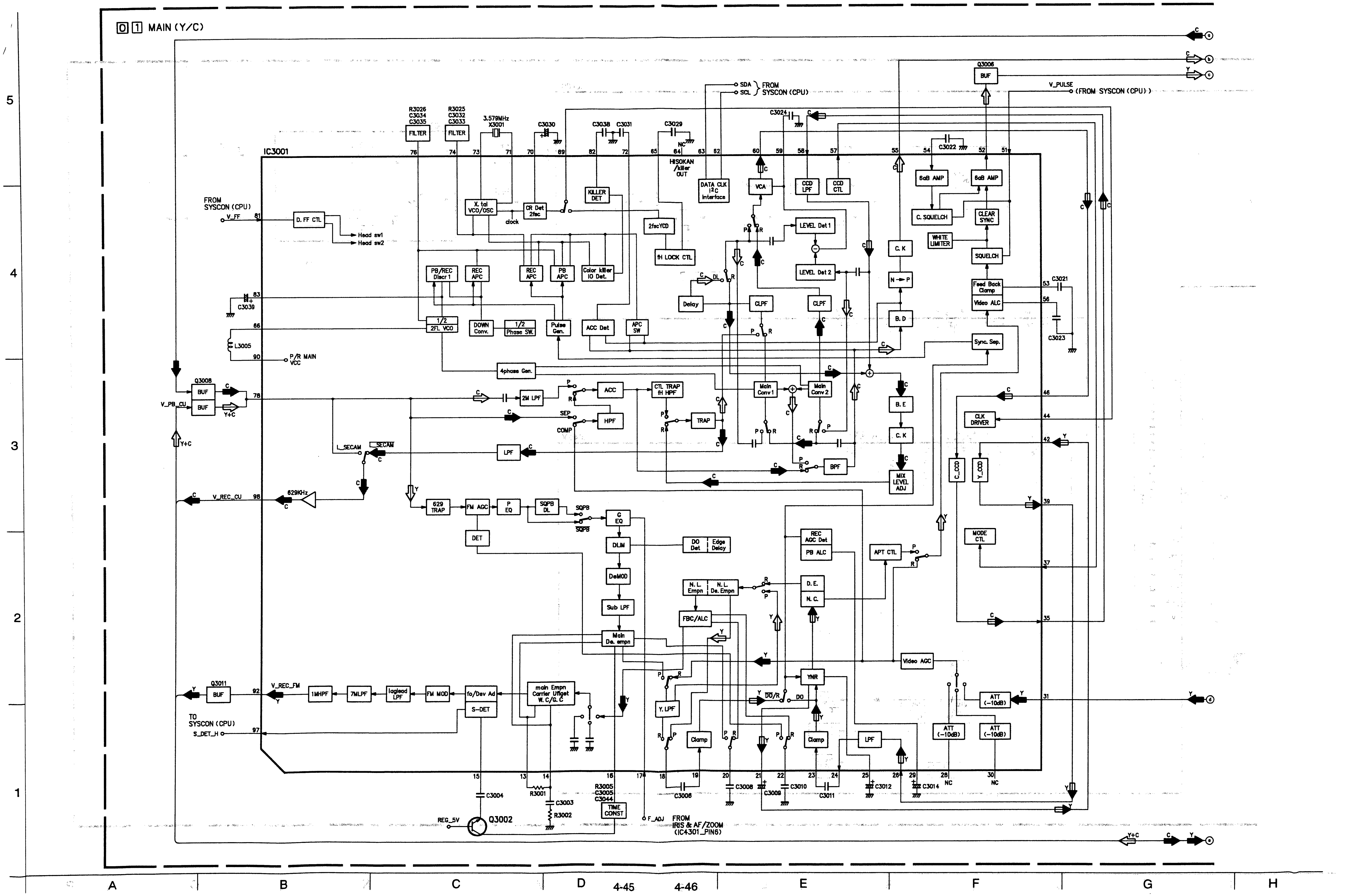
4.19 CAMERA BLOCK DIAGRAM



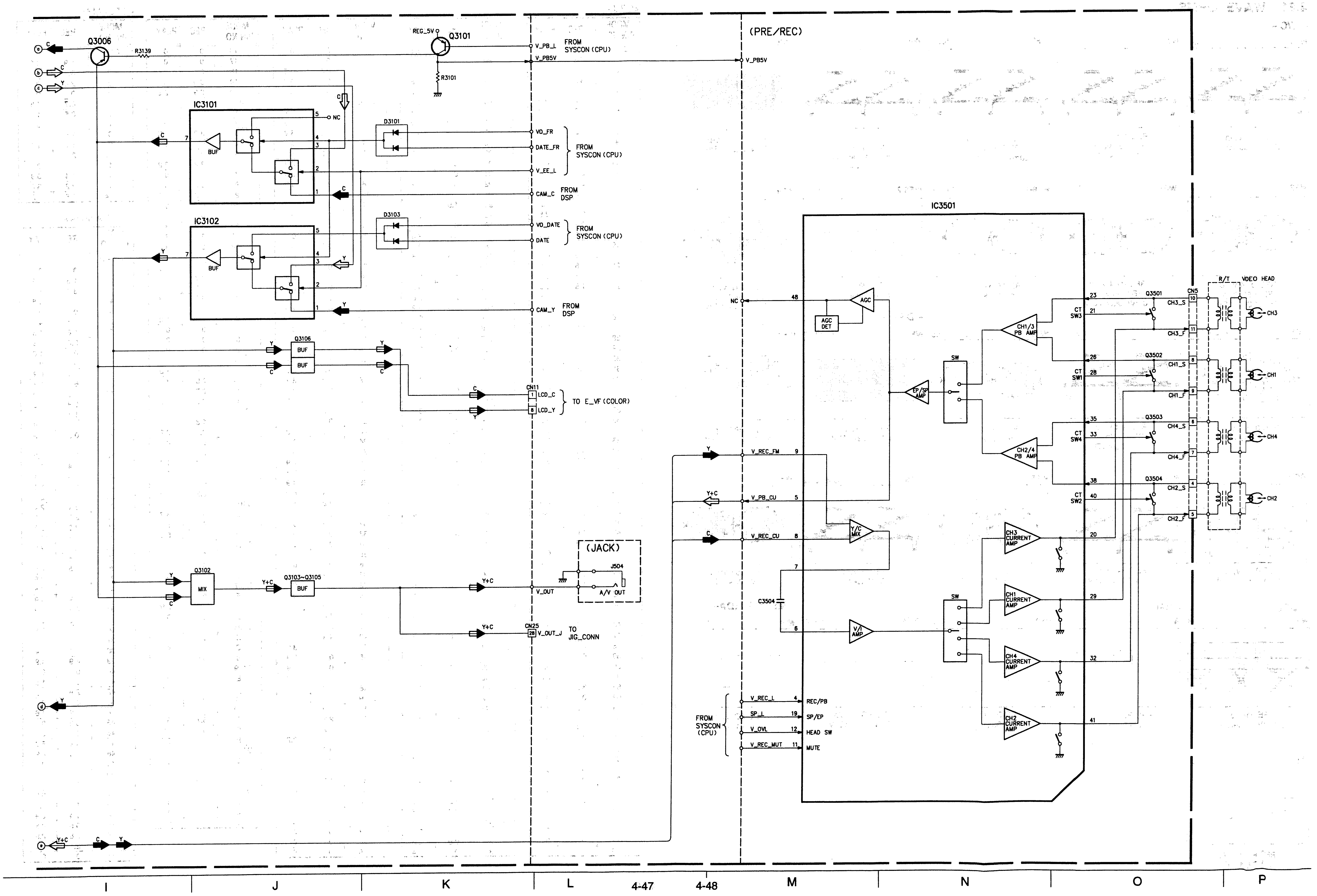
01 MAIN (DSP)
02 CCD
IC5202 (CDS/AGC/AD)
CLAMP
GAIN SELECT
CDS
AGC
A/D CONV
LATCH
SERIAL INTERFACE
OBP
SPBLK
SPSIG
SDATA
SCK
CS
ADCLK
CDSIN
C5226
CDS_AD8
CDS_AD7
CDS_AD6
CDS_AD5
CDS_AD4
CDS_AD3
CDS_AD2
CDS_AD1
CDS_AD0
IC4001
CPOB
AD8
AD0
OB CLAMP
1H DL
Y/C SEPA (3LINE)
V/H APT CTL
PROCESS
RGB SEPA
WB
γ
G CTL
MATRIX
AHD
AVD
VGAT
ID
8FSC
LHF
CLK
OPTICAL BLOCK
CCD IMAGE SENSOR
V1
V2
V3
V4
SUB
H1
H2
Q5301
BUF
CCD_OUT
CN22
IC5201
(TIMING GENERATOR)
CK (28MHz)
XSHP
XSHD
SSI
SSK
CCDCKL
RST
SEN
DSGAT
R5228
X5201
OSC
OUT
VDD
REG_3.3V
IRIS CTL
(SYSCON (CPU))
CDS_CS
SCK3
SO3
CCD_SCS
DSGAT
IC108_42PIN
(IRIS & AF/ZOOM)
CN15
OP_SENS
IC4501
FOCUS3
FOCUS1
FOCUS4
FOCUS2
ZOOM2
ZOOM4
ZOOM3
ZOOM1
BRIDGE DRIVER
PULSE GENERATOR
SERIAL-PARARELLE DECODER
OSCIN
VSYNC
SCLK
SDATA
LATCH
IC4201,IC4202
HALL AMP
MOTOR DRIVE AMP
HE_IN+
HE_OUT-
HE_IN-
HE_OUT+
GND/DRIVE
DUMP-
DRIVE-
DRIVE+
DUMP+
(COMP)
R4217,C4207
LPF
IC4203
BUF
IC111
IC101
CPU
from IR
IR_A/D
CDS_CS
CCD_SCS
OP_SENS
LENS_CLK
VD_H
LENS_CS
SCK3
SO3
D_PWR_ON
REG_3.3V
IRIS_O/C
HALL_A/D
IRIS_PWM
AD0
AD15
LBEN_L
UBEN_L
R/W_L
DSTB_L
ASTB
OMT
LWE
HWE
RE
STB
DSTB
OMT
X1
X2
X101 MAIN SYSTEM CLOCK (16MHz)
a
b
c
A
B
C
D
E
F
G
H
1
2
3
4
5


IC4001
FIELD MEMORY CONTROL INTERFACE
D/A CONV
Y
B-Y
R-Y
BUF
CLAMP
MOD
LPF
SUB CARRIER MODULE
LIM
BLK
54 YOUT
53 COUT
Q4005
Q4002
BUF
IC4003
Y_GAIN_CTL (IC4301_3PIN)
14
15 YIN
2 CIN
CLAMP
VCA
LPF
BPF
12
5
3
4
REG_5V
C_GAIN_CTL (IC4301_4PIN)
Q4006
Q4007
CAM_Y
CAM_C
TO Y/C
C
Y
TMC0
TMC3
TMY0
TMY7
IE
FMWF
WAD
MCLK
FMC0
FMC3
FMY0
FMY7
FMRE
RAE
RAD
56 59 60 69 85 92 89 84 83 79 78 70 86 87 88
6 3 14 7 18 17 16 15 34 37 26 33 25 24 23 22
IC4006
D8 (CIN0)
D11 (CIN3)
D0 (YIN0)
D7 (YIN7)
IE
WE
RSTW
SWCK
Q8 (COUT0)
Q11 (COUT3)
Q0 (YOUT0)
Q7 (YOUT7)
SRCK
RSTR
RE
OE
AD0
20 AD0
AD15
36 AD15
INTERFACE
LWE 15 LWE
HWE 14 HWE
RE 16 RE
STB 17 ALE
DSTB 13 DSTB
OMT 11 OMT
FROM SYSCON (CPU) DSP_RST (IC108_48PIN)
142 CLR
SIGNAL CONV
MEMORY DATE SELECTOR
THROUGH DATE SELECTOR
PROCESSOR & MIXER
SIGNAL DEC
WIPE_CTL
WIPE /CINEMA
OUTPUT SIGNAL SELECTOR
MEMORY WRITE SELECTOR
a
b
c
I
J
K
L
M
N
O
P

4.20 Y/C BLOCK DIAGRAM



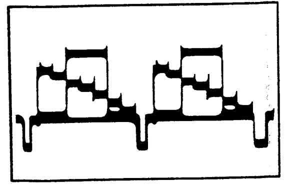
0 1 MAIN (Y/C)
IC3001
FROM SYSCON (CPU)
V_FF
D. FF CTL
Head sw1
Head sw2
R3026 C3034 C3035
R3025 C3032 C3033
FILTER
FILTER
3.579MHz X3001
C3030
C3038 C3031
C3029
NC
HISOKAN /killer OUT
SDA
SCL
FROM SYSCON (CPU)
X. tal VCO/OSC
clock
CR Det 2fsc
KILLER DET
DATA CLK I2C Interface
VCA
CCD LPF
CCD CTL
6dB AMP
6dB AMP
C. SQUELCH
CLEAR SYNC
WHITE LIMITER
SQUELCH
Feed Back Clamp
Video ALC
Sync. Sep.
Q3006
BUF
V_PULSE
(FROM SYSCON (CPU))
C3024
C3022
C3021
C3023
2fscYCD
fH LOCK CTL
LEVEL Det 1
LEVEL Det 2
Delay
DL
CLPF
CLPF
C. K
N → P
B. D
PB/REC Discr 1
REC APC
REC APC
PB APC
Color killer IO Det.
C3039
L3005
P/R MAIN VCC
1/2 2FL VCO
DOWN Conv.
1/2 Phase SW.
Pulse Gen.
ACC Det
APC SW
4phase Gen.
Q3008
BUF
BUF
V_PB_CU
Y+C
2M LPF
ACC
CTL TRAP fH HPF
TRAP
HPF
SEP
COMP
Main Conv 1
Main Conv 2
B. E
C. K
BPF
MIX LEVEL ADJ
CLK DRIVER
C_CCD
Y_CCD
L_SECAM
SECAM
LPF
V_REC_CU
629KHz
629 TRAP
FM AGC
P EQ
SQPB DL
SQPB
SQPB
G EQ
DET
DLIM
DO Det
Edge Delay
DeMOD
Sub LPF
Main De. empn
REC AGC Det
PB ALC
APT CTL
MODE CTL.
N. L. Empn
N. L. De. Empn
D. E.
N. C.
FBC/ALC
Video AGC
YNR
DO/R
DO
Y. LPF
Clamp
Clamp
LPF
ATT (−10dB)
ATT (−10dB)
ATT (−10dB)
Q3011
BUF
V_REC_FM
1MHPF
7MLPF
laglead LPF
FM MOD
fo/Dev Ad
S-DET
main Empn Carrier Ufiget W. C/G. C
TO SYSCON (CPU)
S_DET_H
C3004
R3001
C3003
R3002
R3005 C3005 C3044
TIME CONST
F_ADJ
FROM IRIS & AF/ZOOM (IC4301_PIN6)
REG_5V
Q3002
C3006
C3008
C3009
C3010
C3011
C3012
C3014
NC
NC
a
b
c
d
e
A
B
C
D
E
F
G
H
1
2
3
4
5


(PRE/REC)
Q3006
R3139
REG_5V
Q3101
R3101
V_PB_L
V_PB5V
FROM SYSCON (CPU)
V_PB5V
IC3101
NC
BUF
D3101
VD_FR
DATE_FR
V_EE_L
FROM SYSCON (CPU)
CAM_C
FROM DSP
IC3102
BUF
D3103
VD_DATE
DATE
FROM SYSCON (CPU)
CAM_Y
FROM DSP
Q3106
BUF
BUF
CN11
LCD_C
LCD_Y
TO E_VF (COLOR)
Q3102
MIX
Q3103~Q3105
BUF
Y+C
(JACK)
J504
A/V OUT
V_OUT
CN25
V_OUT_J
TO JIG_CONN
IC3501
NC
AGC
AGC DET
EP/SP AMP
SW
CH1/3 PB AMP
CH2/4 PB AMP
V_REC_FM
V_PB_CU
V_REC_CU
Y/C MIX
C3504
V/I AMP
SW
CH3 CURRENT AMP
CH1 CURRENT AMP
CH4 CURRENT AMP
CH2 CURRENT AMP
FROM SYSCON (CPU)
V_REC_L
SP_L
V_OVL
V_REC_MUT
REC/PB
SP/EP
HEAD SW
MUTE
CT SW3
CT SW1
CT SW4
CT SW2
Q3501
Q3502
Q3503
Q3504
CN5
CH3_S
CH3_F
CH1_S
CH1_F
CH4_S
CH4_F
CH2_S
CH2_F
R/T
VIDEO HEAD
CH3
CH1
CH4
CH2
I
J
K
L
M
N
O
P

4.21 WAVEFORMS

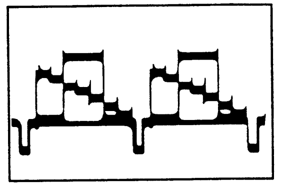
– Y/C –

WF1 IC3102-1



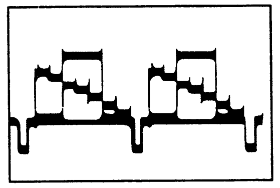
REC 1.2Vp-p
20mV/10µse/DIV

WF2 IC3102-3



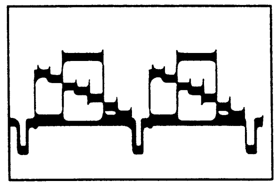
REC 1.12 Vp-p
PB 0.95 Vp-p
20mV/10msec/DIV

WF3 IC3102-7



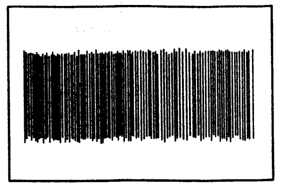
REC 1.12 Vp-p
PB 0.95 Vp-p
20mV/10µsec/DIV

WF4 IC3001-31



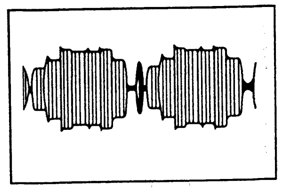
REC 1.2 Vp-p
PB 0.9 Vp-p
10mV/10µsec/DIV
20mV/10µsec/DIV

WF5 IC3001-92



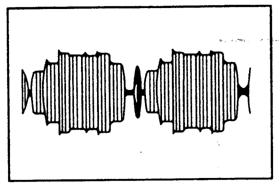
REC 0.45 Vp-p
10mV/10µsec/DIV

WF6 IC3101-1



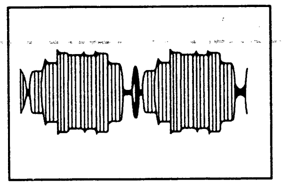
REC 0.44 Vp-p
PB 0.58 Vp-p
10mV/10µsec/DIV

WF7 IC3101-7



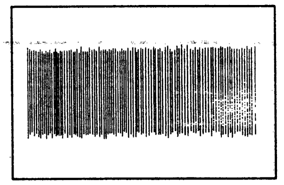
REC 0.44 Vp-p
PB 0.58 Vp-p
10mV/10µsec/DIV

WF8-1 IC3001-78



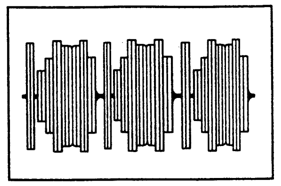
REC 0.54 Vp-p
10mV/10µsec/DIV

WF8-2 IC3001-78



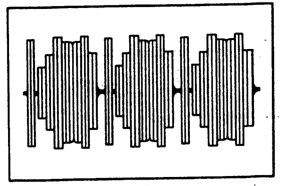
PB 0.28 Vp-p
10mV/10µsec/DIV

WF9 IC3001-58



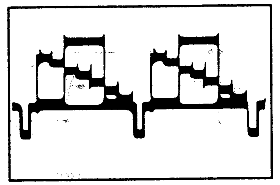
REC 0.42 Vp-p
PB 0.44 Vp-p
10mV/10µsec/DIV

WF10 IC3001-98



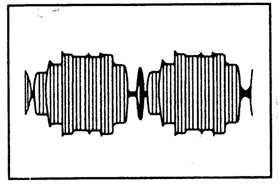
REC 0.16 Vp-p
5mV/10µsec/DIV

WF11 IC3001-52



REC 2.4 Vp-p
PB 2.0 Vp-p
50mV/10µsec/DIV

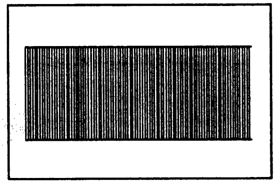
WF12 IC3001-55



PB 0.5 Vp-p
10mV/10µsec/DIV

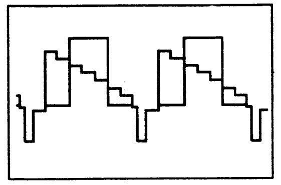
– DSP –

WF1 IC5202-27



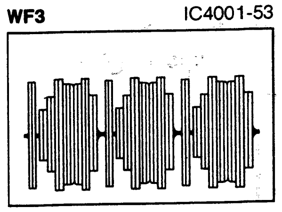
EE 0.1 Vp-p
10mV/10µsec/DIV

WF2 IC4001-54



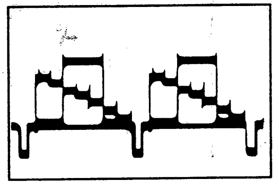
EE 0.88 Vp-p
20mV/10µsec/DIV

WF3 IC4001-53



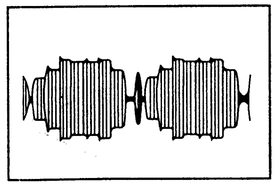
EE 0.34 Vp-p
10mV/10µsec/DIV

WF4 IC4003-15



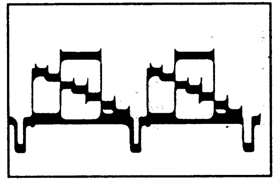
EE 0.84 Vp-p
20mV/10µsec/DIV

WF5 IC4003-2



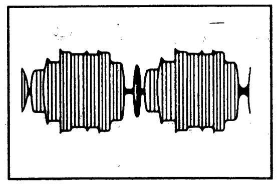
EE 0.5 Vp-p
10mV/10µsec/DIV

WF6 IC4003-12



EE 1.3 Vp-p
0.1V/10µsec/DIV

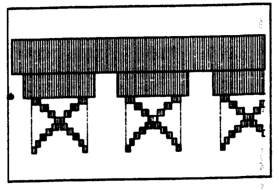
WF7 IC4003-5



EE 0.65 Vp-p
0.1V/10µsec/DIV

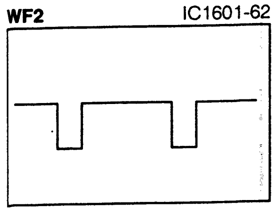
– CCD –

WF1 Q5301-B



EE 0.8 Vp-p
10mV10µsec/DIV

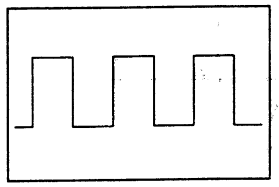
WF2 IC1601-62



REC/PB 3.2 Vp-p
0.1V/5msec/DIV

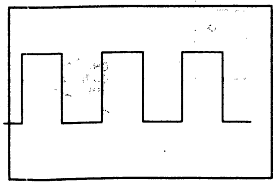
– CPU –

WF1 IC101-83



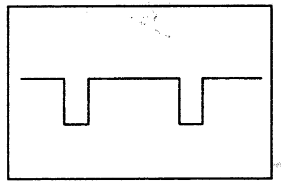
REC/PB 3.2 Vp-p
0.1V/0.5msec/DIV

WF2 IC101-85



REC/PB 3.2 Vp-p
0.1V/50µsec/DIV

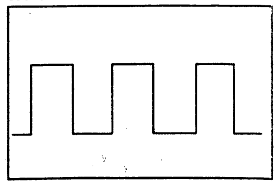
WF3 IC101-87



REC/PB 3.2 Vp-p
0.1V/5msec/DIV

– MECHA MDA–

WF1 IC1601-29



REC/PB 3.2 Vp-p
0.1V/0.1msec/DIV

4.22 VOLTAHGE CHARTS

<CPU>

MODE PIN NO.	REC	PLAY
IC101		
1	3.2	3.2
2	0	0
3	3.2	3.2
4	0	0
5	3.2	3.2
6	3.2	3.2
7	3.2	3.2
8	3.2	3.3
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	2.3	2.2
15	3.2	3.2
16	2.3	2.8
17	2.3	2.8
18	1.7	0.5
19	0	0
20	1.6	0.5
21	1.6	0.5
22	1.6	0.5
23	1.6	0.5
24	1.6	0.8
25	1.6	0.6
26	1.6	0.7
27	1.6	0.5
28	1.6	0.4
29	1.6	0.4
30	1.6	0.4
31	1.6	0.4
32	1.6	0.5
33	1.6	0.4
34	1.6	0.4
35	1.6	0.5
36	3.2	3.2
37	0	0
38	0	0
39	3.2	3.2
40	3.2	3.2
41	3.2	3.2
42	0	0
43	2.0	2.0
44	2.0	2.0
45	3.2	3.2
46	0	0
47	1.6	1.6
48	1.6	1.6
49	0	0
50	3.2	3.2
51	1.5	1.5
52	1.4	1.4
53	1.5	1.0
54	0	0
55	0	0
56	3.1	3.2
57	1.6	1.6
58	0	0
59	0	0
60	0	3.2
61	3.2	3.2
62	3.2	3.2
63	0	0
64	3.2	3.2
65	3.2	3.2
66	3.2	3.2
67	0	0
68	3.0	3.0
69	0	0
70	0	0
71	0	0
72	3.2	3.2
73	0	0
74	3.2	3.2
75	3.2	3.2
76	0	0
77	0	0
78	-	-
79	0.7	1.6
80	3.2	0
81	3.2	2.8
82	0	2.8
83	1.6	1.6
84	0	0
85	1.6	1.6
86	1.9	1.9
87	3.0	3.0
88	3.2	0
89	0.9	0.9
90	0	0
91	0	0
92	3.2	3.2
93	1.5	0.5
94	1.9	2.5
95	2.1	2.1
96	0	0
97	3.0	2.8
98	0	0
99	1.6	1.6
100	1.9	3.1
101	1.1	3.2
102	0	3.2
103	2.9	2.6
104	3.3	3.2
105	2.9	2.7
106	1.3	2.3
107	0	1.2
108	3.2	3.2
109	3.2	3.2
110	0	0
111	3.2	3.2
112	0	0
113	2.0	0
114	3.2	3.2
115	3.2	0
116	3.2	1.2
117	1.6	1.2
118	0	0
119	3.2	0
120	3.2	3.2
121	0	0
122	0.4	1.1
123	3.2	1.2
124	2.5	2.8
125	3.0	3.2
126	3.2	3.2
127	-	3.2
128	0	1.2
129	-	1.5
130	1.6	1.5
131	1.6	1.5
132	1.2	1.1
133	1.6	1.2
134	2.9	2.9
135	3.2	0
136	1.6	1.6
137	3.2	1.2
138	1.6	1.3
139	1.5	1.5
140	0	0
141	0	0
142	0	0
143	3.2	3.2
144	0	0
IC102		
1	3.3	3.3
2	0	0
3	6.7	6.7
IC103		
1	0.9	0
2	0	0
3	3.2	3.2
4	3.2	3.2
IC104		
1	0	0
2	2.9	2.9
3	0	1.4
4	0	0
5	0	0
6	0.4	0.5
7	0.7	0.7
8	3.1	3.2
IC105		
1	3.2	3.2
2	1.4	1.5
3	3.2	3.2
4	-	0
5	1.2	1.1
6	2.9	2.9
7	3.2	3.2
8	3.2	3.2
IC108		
1	0	0
2	0	0
3	0	0
4	0	0
5	3.1	3.1
6	0	0
7	0	0
8	3.2	3.2
9	2.9	2.9
10	0	1.3
11	0.4	1.3
12	3.2	3.2
13	3.2	3.3
14	0	0
15	0	0
16	3.1	2.9
17	3.2	3.2
18	3.2	3.2
19	3.2	3.3
20	3.2	3.2
21	3.0	2.8
22	0	0
23	3.3	3.2
24	0	0
25	4.9	0
26	0	4.9
27	2.5	2.5
28	0	4.9
29	4.9	4.9
30	4.9	5.0
31	0	0
32	4.9	0
33	0	0
34	0	0
35	0	0
36	0	0
37	4.9	0
38	0	0
39	0	0
40	2.9	0
41	1.6	3.1
42	2.9	0
43	4.9	5.0
44	0	3.2
45	0	2.9
46	0	0.9
47	0	1.3
48	2.9	3.2
IC109		
1	2.9	2.9
2	2.3	2.3
3	1.2	1.3
4	3.2	3.2
5	3.2	3.2
6	0	0
7	1.2	1.2
8	1.2	1.2
9	0	0
10	0	0
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	0	0
17	0	0
18	0	0
19	3.0	3.1
20	2.9	2.9
IC110		
1	0	0
2	0	0
3	3.2	3.2
4	0	0
5	0	0
6	3.2	3.2
7	0	0
8	3.2	3.2
9	3.2	3.2
10	0	0
11	0	0
12	3.2	3.2
13	3.2	3.2
14	3.2	3.2
IC111		
1	3.2	3.0
2	3.2	3.2
3	3.2	3.3
4	3.2	3.3
5	1.2	1.0
6	1.2	1.2
7	0	0
8	0	0
9	0	0
10	0	0
11	2.9	3.0
12	2.9	3.0
13	0.7	3.2
14	3.2	3.2
IC112		
1	1.3	0.7
2	3.2	3.2
3	0	0
4	0	0
5	1.2	1.2
6	1.2	1.4
7	0	0
8	3.2	3.2
Q101		
E	6.7	6.7
C	6.7	6.7
B	5.9	5.9
Q102		
E	0	0
C	0	0
B	3.3	3.3
Q107		
E	0	0
C	2.6	2.9
B	0	0
Q108		
E	0	0
C	0	4.9
B	0.6	0
Q109		
E	0	0
C	6.3	6.3
B	0	0
Q110		
E	6.7	6.7
C	0	-3.1
B	6.7	6.7
Q111		
E	0	0
C	0	0
B	4.9	4.9
Q112		
E	4.9	4.9
C	4.9	4.9
B	0	0

<CTL AMP>

MODE PIN NO.	REC	PLAY
IC1201		
1	1.9	1.9
2	3.2	0
3	2.0	0
4	0	0
5	0.7	1.8
6	0.5	1.7
7	0	0
8	1.6	1.7
9	1.7	1.7
10	2.0	1.7
11	0	0
12	1.4	0.9
13	2.2	3.2
14	2.5	3.2

<MECHA MDA>

MODE PIN NO.	REC	PLAY
IC1601		
1	0	0
2	1.8	1.8
3	6.7	6.7
4	1.8	1.8
5	0	0
6	4.1	4.1
7	1.8	1.8
8	2.0	1.8
9	0	1.6
10	0	0
11	1.1	0.9
12	6.7	6.7
13	1.9	2.0
14	0.8	0.8
15	1.1	0.9
16	0	0.9
17	0.9	0.9
18	1.7	1.7
19	0.9	0.9
20	1.4	1.0
21	1.4	1.4
22	1.3	1.4
23	2.5	2.4
24	2.4	2.4
25	2.5	2.5
26	2.0	2.5
27	2.5	2.5
28	2.5	2.5
29	1.6	1.6
30	2.5	2.5
31	-	2.5
32	-	2.5
33	4.9	4.9
34	0.9	0.9
35	0.6	0.6
36	0.5	0.5
37	1.2	-
38	1.4	1.4
39	4.9	4.9
40	0	0
41	0.6	1.5
42	2.9	2.9
43	0	0
44	1.2	1.6
45	3.2	3.2
46	0	0
47	4.9	5.0
48	4.9	4.9
49	0	0
50	-	-
51	0	0
52	0.7	0.5
53	1.5	1.5
54	1.4	0.9
55	0.5	0.5
56	2.8	2.8
57	2.1	2.1
58	0	0

MODE PIN NO.	REC	PLAY
59	0.7	0.7
60	0	0
61	2.5	2.5
62	3.1	3.1
63	2.0	2.0
64	2.5	2.5
65	2.5	2.4
66	2.5	2.5
67	2.4	2.4
68	1.6	1.6
69	0	0
70	1.8	1.8
71	1.8	1.8
72	1.8	1.8
73	1.8	1.8
74	2.4	2.4
75	2.5	2.4
76	2.4	2.4
77	0.7	0.7
78	6.3	6.3
79	6.3	6.3
80	6.3	6.3
QA1601		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	0	0
9	0	1.8
10	1.8	1.8
11	6.4	6.3
12	1.8	1.8
13	6.3	6.3
14	1.8	1.8
15	6.4	6.4
16	6.7	6.7
QA1602		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	0	0
9	0	1.4
10	0.8	0.8
11	1.4	1.0
12	0.9	0.8
13	1.4	1.4
14	0.9	0.
15	1.4	1.3
16	1.8	1.7

<IR>

MODE PIN NO.	REC	PLAY
IC1801		
1	3.0	3.0
2	0	0
3	4.9	4.9
IC1802		
1	0	2.0
2	0	2.0
3	2.0	2.0
4	0	0
5	2.0	2.0
6	2.0	2.0
7	1.7	1.7
8	4.9	4.9
Q1801		
E	0	0
C	3.9	4.2
B	-	-
Q1802		
E	0	0
C	0	2.2
B	0.6	0

<Y/C/AUDIO>

MODE PIN NO.	REC	PLAY
IC2071		
1	0	0
2	0	0
3	0	0
4	0	0
5	4.9	4.8
6	0	0
7	1.8	1.8
8	0	0
9	0	0
10	0	1.7
11	1.8	1.8
12	0	0
13	0	0
14	-	-
IC3001		
1	2.5	2.5
2	2.5	2.5
3	2.3	0
4	0	2.4
5	0	0
6	2.4	0
7	2.4	2.4
8	2.4	2.5
9	0	2.5
10	2.4	2.4
11	0	2.4
12	4.9	4.9
13	1.8	1.5
14	1.8	1.5
15	2.6	2.9
16	1.8	0.8
17	0	0.6
18	2.3	2.1
19	3.0	3.1
20	2.7	2.8
21	2.2	2.2
22	2.3	2.0
23	3.0	3.1
24	2.1	2.1
25	1.4	1.4
26	2.1	2.1
27	0	0
28	2.8	2.8
29	1.9	1.9
30	2.8	2.8
31	2.7	2.7
32	0	0
33	0	0
34	0	0
35	3.0	3.0
36	4.9	4.9
37	4.9	4.8
38	4.8	4.9
39	3.1	3.2
40	4.9	4.9
41	4.9	4.9
42	1.9	1.9
43	4.9	4.9
44	2.6	2.6
45	0	0
46	1.9	1.8
47	0	0
48	0	0
49	0	0
50	0.4	0
51	0	0
52	2.4	2.4
53	2.8	2.8
54	1.9	1.9
55	2.1	2.1
56	2.7	2.7
57	4.8	4.9
58	3.1	3.0
59	3.3	3.3
60	2.1	2.1
61	4.8	4.8
62	3.2	3.2
63	3.2	3.2
64	0	0
65	0	0
66	4.9	4.9
67	4.9	4.9
68	0	0
69	2.8	2.8
70	2.6	2.7
71	2.1	2.1
72	2.3	2.2
73	1.6	1.7
74	2.6	1.1
75	1.8	2.0
76	2.4	2.4
77	0	0
78	2.7	2.8
79	0	0
80	0	0
81	0	2.5
82	1.2	1.2
83	2.4	2.4
84	4.9	4.9
85	0	0
86	0	0
87	0	0
88	0	0
89	0	0
90	4.9	4.9
91	0	0
92	2.2	4.3
93	0	0
94	0	0
95	2.8	2.8
96	5.0	5.0
97	1.1	1.1
98	2.3	1.1
99	0	0
100	2.5	2.5
IC3101		
1	2.4	2.5
2	0	4.9
3	2.5	2.4
4	0	0
5	2.5	2.5
6	4.9	4.9
7	1.7	1.7
8	0	0
IC3102		
1	0	1.8
2	0	4.9
3	2.1	1.9
4	0	0
5	1.0	1.8
6	4.9	4.9
7	1.0	1.1
8	0	0
Q2001		
E	5.0	5.0
C	4.8	2.5
B	4.2	5.0
Q2002		
E	4.8	2.2
C	4.7	0
B	4.1	2.2
Q2003		
E	0	0
C	0	5.0
B	0.6	0
Q2004		
E	0	0
C	4.5	0
B	0	0
Q2005		
E	0	0
C	0	1.9
B	3.8	0
Q2006		
E	0	0
C	3.9	0
B	0	4.9
Q2007		
1	-12.9	0
2	-18.3	0.7
3	0	0
4	-12.5	0
5	-15.5	0.7
6	0	0
Q2008		
E	4.9	4.8
C	-17.4	4.8
B	4.8	0
Q2009		
E	0	0
C	4.9	0
B	0	4.9
Q2011		
E	0	0
C	3.8	3.7
B	1.0	0
Q2012		
E	0	0
C	0	0
B	3.8	3.7
Q2061		
E	0	0
C	0	0
B	0.6	0.6
Q2062		
E	1.8	1.8
C	4.8	4.8
B	2.4	2.3
Q3006		
E	1.7	1.8
C	0	0
B	1.1	1.1
Q3008		
1	1.1	2.3
2	1.7	0
3	4.8	4.9
4	1.1	2.2
5	0	2.9
6	4.9	4.9
Q3011		
E	1.6	3.6
C	4.8	4.9
B	2.2	4.3
Q3101		
E	4.9	4.9
C	0	4.8
B	4.9	0
Q3102		
1	0.9	0.9
2	1.5	1.5
3	2.8	2.7
4	1.0	1.0
5	1.5	1.6
6	4.9	4.9
Q3103		
E	2.2	2.1
C	4.9	4.9
B	2.8	2.7
Q3104		
1	2.2	2.1
2	2.8	2.7
3	4.9	4.9
4	1.5	1.5
5	2.2	2.1
6	4.9	4.9
Q3105		
1	2.1	2.1
2	1.5	1.5
3	5.0	5.0
4	2.8	2.7
5	2.1	2.1
6	5.0	5.0
Q3106		
1	1.8	1.8
2	1.2	1.1
3	4.9	4.9
4	1.1	1.1
5	1.7	1.7
6	0	0
Q3107		
E	1.7	1.7
C	1.7	0
B	1.1	4.8

<PRE/REC>

MODE PIN NO.	REC	PLAY
IC3501		
1	0	0
2	0	0
3	2.3	2.4
4	0	3.2
5	4.5	2.3
6	1.5	0
7	1.8	2.9
8	2.3	2.4
9	0	2.4
10	0	3.3
11	0	0
12	0	0
13	0	0.8
14	0	0.8
15	0	0
16	1.3	1.9
17	3.1	3.6
18	1.4	0
19	0	0
20	4.0	0
21	-	0.5
22	4.1	0
23	0	0.6
24	0	0.7
25	0	0
26	0	0.6
27	4.6	2.4
28	-	0.5
29	4.1	0
30	4.8	0
31	1.9	0
32	1.9	0
33	-	0.5
34	4.7	2.4
35	0	0.6

MODE PIN NO.	REC	PLAY
36	1.8	0
37	0	0.7
38	0	0.6
39	4.1	0
40	-	0.6
41	4.1	0
42	3.2	3.1
43	0	0
44	4.9	4.9
45	4.9	4.9
46	2.4	3.7
47	1.5	2.5
48	1.5	2.5
Q3501		
1	4.1	0
2	3.6	0.6
3	4.1	0
4	4.1	0
5	-	0.6
6	4.1	0
Q3502		
1	4.1	0
2	-	0.5
3	4.1	0
4	4.1	0
5	-	0.6
6	4.1	0
Q3503		
1	4.1	0
2	-	0
3	4.9	4.9
4	4.1	0
5	4.7	0
6	4.8	4.9
Q3506		
E	0	0
C	0	0
B	0	4.8
Q3509		
E	1.8	3.1
C	4.9	4.9
B	2.4	3.7
Q3901		
1	0	3.7
2	0	0
3	2.7	0
4	0	1.6
5	0	0
6	2.7	0
Q3903		
E	0	0
C	0	3.7
B	3.2	0
Q3904		
E	3.2	3.2
C	2.9	0
B	0	3.2
Q3905		
E	0	0
C	2.7	0
B	0	4.8

<DSP>

MODE PIN NO.	REC	PLAY
IC4001		
1	2.3	2.3
2	0	0
3	0	0
4	1.6	1.6
5	0	0
6	0	0
7	0.7	0.7
8	1.2	1.2
9	0	0
10	0	0
11	0	0
12	3.2	3.2
13	3.2	3.2
14	0	0
15	0	0
16	3.1	3.2
17	3.2	3.2
18	3.2	3.2
19	0	0
20	1.6	0.7
21	1.7	0.6
22	1.6	0.5
23	1.6	0.6
24	1.7	0.7
25	1.6	0.6
26	1.6	0.5
27	1.3	0.5
28	1.6	0.7
29	1.5	0.9
30	0	0
31	1.5	0.9
32	1.5	0.9
33	1.5	0.7
34	1.4	0.7
35	1.4	0.6
36	1.4	0.6
37	2.3	2.3
38	0	0
39	2.4	2.4
40	0	0
41	3.2	3.2
42	0	0
43	1.5	3.3
44	1.5	0
45	1.5	2.8
46	1.5	0
47	1.4	1.4
48	1.1	1.1
49	1.4	0
50	1.4	1.4
51	1.1	1.1
52	1.4	1.4
53	2.9	2.9
54	2.7	2.5
55	0	0
56	1.2	1.3
57	1.2	1.3
58	1.2	2.0
59	1.6	0.9
60	1.2	2.7
61	1.2	2.7
62	1.0	0
63	0.8	0
64	0.9	0
65	2.3	2.3
66	0	0
67	1.5	2.7
68	1.5	0
69	0.9	0
70	1.6	0.4
71	1.5	0.4
72	1.3	0.4
73	2.3	2.3
74	1.5	1.7
75	1.6	1.7
76	1.6	1.7
77	1.6	1.7
78	1.6	1.7

MODE PIN NO.	REC	PLAY
79	1.6	1.6
80	1.6	1.7
81	0	0
82	1.6	1.7
83	1.6	0.5
84	1.6	0
85	3.1	0
86	0	0
87	2.7	2.7
88	0	0
89	0	0
90	3.2	0
91	0	0
92	2.6	2.7
93	0	0
94	3.2	0
95	0.8	0
96	0.8	0
97	1.0	0
98	1.3	0
99	0.8	0
100	0.9	0
101	1.0	0
102	0	0
103	1.0	0
104	1.5	1.9
105	1.1	0
106	1.0	0
107	1.0	0
108	1.5	1.6
109	2.3	2.3
110	0	0
111	0.7	0
112	0.8	3.0
113	0.8	3.0
114	2.1	3.0
115	1.0	3.0
116	1.0	3.0
117	0	0
118	1.0	3.0
119	1.3	3.0
120	0	0
121	3.0	0
122	3.2	3.0
123	2.9	3.0
124	1.1	0
125	0	0
126	3.2	3.2
127	0	0
128	0	0
129	1.5	1.6
130	2.9	3.2
131	3.1	3.1
132	3.1	3.1
133	3.2	3.2
134	1.6	1.7
135	1.6	1.7
136	0	3.3
137	2.3	2.3
138	0	0
139	0	0.7
140	0	0
141	0	0
142	0	0
143	0	3.2
144	1.3	1.4
IC4002		
1	3.2	3.2
2	0	0
3	1.2	1.3
4	2.3	2.3
5	3.2	3.2
IC4003		
1	4.8	4.8
2	2.5	2.5
3	0.9	4.8
4	2.2	2.2
5	2.0	1.9
6	4.8	4.8

MODE PIN NO.	REC	PLAY
7	0	0
8	0.8	1.9
9	1.9	1.9
10	0	0
11	0	0
12	2.6	2.4
13	4.8	4.8
14	2.7	2.7
15	1.3	1.2
16	4.8	4.8
IC4005		
1	4.9	4.9
2	0	0
3	1.7	1.3
4	3.3	3.3
5	4.9	4.9
IC4006		
1	0	0
2	0	0
3	1.4	0.9
4	1.4	2.0
5	1.4	1.3
6	1.4	1.3
7	1.0	0
8	1.0	0
9	1.2	2.6
10	1.0	0
11	1.0	0
12	1.2	0
13	1.1	2.6
14	1.2	2.6
15	1.5	1.5
16	0	0
17	2.7	2.7
18	3.1	3.1
19	3.2	3.2
20	0	0
21	3.2	3.2
22	0	2.7
23	2.6	2.6
24	0	0
25	1.5	1.6
26	1.2	2.6
27	1.1	3.0
28	1.2	0
29	1.0	0
30	1.2	0
31	1.2	2.7
32	0.9	0
33	1.0	0
34	1.3	1.3
35	1.5	1.3
36	1.3	1.9
37	1.2	0.7
38	0	0
IC5201		
1	3.1	0
2	2.6	0
3	0	0
4	0	0
5	3.2	3.2
6	0	0
7	1.3	1.4
8	0	0
9	1.6	3.2
10	3.2	3.2
11	1.7	1.5
12	1.3	1.5
13	3.2	3.2
14	0	0
15	2.5	0
16	2.6	0
17	2.5	0
18	3.4	3.2
19	3.2	3.2
20	3.2	3.2
21	3.1	0
22	1.4	0
23	0	0

MODE PIN NO.	REC	PLAY
24	-1.9	14.9
25	0	0
26	0	14.9
27	14.8	14.9
28	-7.6	14.9
29	-8.0	-8.6
30	0	0
31	-7.6	0
32	3.2	0
33	0	0
34	0	0
35	0	0
36	0	0
37	2.9	2.9
38	2.2	1.3
39	3.2	0
40	3.2	3.2
41	0	0
42	3.0	0
43	3.2	3.2
44	2.9	2.9
45	3.1	3.1
46	3.2	3.2
47	3.2	3.2
48	1.4	1.6
IC5202		
1	0	0
2	1.5	0
3	1.4	3.0
4	1.1	3.0
5	1.4	3.0
6	1.4	3.0
7	1.5	3.0
8	1.6	3.0
9	0.6	3.0
10	1.6	3.0
11	1.6	3.0
12	0	0
13	0	0
14	0	0
15	3.0	3.0
16	1.6	1.7
17	1.6	3.2
18	2.6	0
19	2.6	0
20	0	0
21	1.5	3.0
22	0	0
23	1.6	1.6
24	1.7	1.6
25	0.8	0
26	3.0	3.0
27	1.5	1.5
28	1.5	0
29	1.5	0
30	1.5	0
31	3.0	3.0
32	1.1	1.2
33	1.5	1.5
34	1.8	1.9
35	1.2	1.2
36	0	0
37	0	0
38	3.0	3.0
39	0	0
40	0	0
41	3.0	3.0
42	0	0
43	3.2	3.2
44	1.2	2.9
45	1.2	1.0
46	3.0	3.0
47	0	0
48	1.2	0
IC5203		
1	4.9	5.0
2	0	0
3	1.3	1.3
4	3.0	3.0

MODE PIN NO.	REC	PLAY
5	4.9	5.0
Q4001		
E	2.2	2.2
C	4.8	4.8
B	2.8	2.8
Q4002		
E	2.3	2.3
C	4.8	4.8
B	2.9	2.9
Q4005		
E	2.1	1.9
C	4.8	4.8
B	2.7	2.5
Q4006		
E	1.9	1.7
C	4.8	4.8
B	2.5	2.3
Q4007		
E	1.4	1.4
C	4.8	4.8
B	2.0	2.0

<IRIS/AF/ZOOM>

MODE PIN NO.	REC	PLAY
IC4201		
1	4.0	4.0
2	1.7	1.6
3	1.6	1.6
4	0	0
5	2.0	2.0
6	2.0	2.0
7	2.0	2.0
8	6.6	6.6
IC4202		
1	1.5	0
2	1.8	0.5
3	1.8	0
4	4.9	4.9
5	2.0	2.0
6	2.0	2.0
7	4.9	0.5
8	0.6	2.6
9	0.7	2.0
10	0.7	2.0
11	0	0
12	0.4	0.4
13	0.4	0.4
14	1.0	1.0
IC4203		
1	1.7	1.0
2	1.7	1.0
3	0	0
4	1.7	0
5	3.2	3.2
IC4301		
1	0	0
2	2.1	2.1
3	2.6	2.7
4	2.2	2.2
5	1.6	1.6
6	0	0.6
7	3.2	3.0
8	3.2	3.2
9	3.2	3.2
10	0	0
11	2.6	2.6
12	0	0
13	2.9	2.9
14	1.2	0
15	2.6	2.6
16	0	0
IC4501		
1	0	0
2	0	0
3	0	0

MODE PIN NO.	REC	PLAY
4	0	0
5	0	0
6	0	0
7	0	0
8	3.2	3.2
9	6.6	6.6
10	3.0	1.3
11	0	0
12	2.7	1.3
13	6.6	6.6
14	0	3.0
15	0	0
16	6.6	6.6
17	0	0
18	0	0
19	0	0
20	0	0
21	0	0
22	0	0
23	6.6	6.6
24	3.0	0.7
25	0.9	0
26	0	0.5
27	6.6	6.6
28	3.0	0.4
29	0	0
30	2.9	0.7
31	0	0
32	0	0
33	0	0
34	1.3	1.1
35	2.9	3.2
36	1.6	1.6
37	1.5	1.5
38	2.7	2.9
Q4201		
E	0.4	0.4
C	1.4	1.4
B	1.0	1.0
Q4202		
E	6.7	6.7
C	6.6	6.6
B	5.9	5.9
Q4203		
E	0	0
C	0	0
B	3.2	3.2
Q4501		
E	0	0
C	11.1	11.5
B	0	0
Q4502		
E	0	0
C	9.4	11.1
B	0	0

<REGULATOR>

MODE PIN NO.	REC	PLAY
IC6001		
1	4.0	4.0
2	6.9	6.9
3	5.8	5.8
4	0	0
5	1.4	1.4
6	1.2	1.2
7	1.2	1.3
8	5.0	5.0
9	0	0
10	1.8	1.8
11	0	0
12	0	0
13	6.6	6.7
14	0	0
15	1.8	1.8
16	1.2	1.3
17	1.6	1.6
18	6.6	6.7
19	2.5	2.5
20	3.2	3.2
21	3.2	3.2
22	3.2	3.2
23	0	0
24	0.8	0.8
25	1.3	1.3
26	1.3	1.3
27	1.7	1.7
28	1.9	1.8
29	1.0	1.0
30	1.2	1.2
31	1.2	1.2
32	1.6	1.6
33	2.5	2.5
34	4.3	4.3
35	6.0	6.0
36	4.9	4.9
37	6.4	6.4
38	2.4	2.3
39	6.2	6.3
40	6.1	6.2
41	2.4	2.4
42	0	0
43	2.2	2.2
44	6.4	6.5
45	6.6	6.7
46	6.0	6.1
47	2.4	2.4
48	5.7	5.8
IC6002		
1	0	0
2	15.7	15.7
3	12.1	12.1
4	0	0
Q6001		
1	0	0
2	6.0	6.1
3	6.6	6.7
4	5.1	5.0
Q6002		
1	0	0
2	6.4	6.5
3	6.7	6.7
4	1.9	1.8
Q6003		
1	0	0
2	6.3	6.3
3	6.6	6.7
4	3.2	3.2
Q6004		
E	6.6	6.7
C	0	0
B	6.1	6.2
Q6005		
E	4.9	5.0
C	4.9	4.9
B	4.3	4.3

MODE PIN NO.	REC	PLAY
Q6006		
E	0	0
C	0	0
B	0.6	0.6
Q6007		
E	-8.0	-8.8
C	-8.7	-9.1
B	-8.7	-9.1
Q6009		
E	15.0	15.0
C	15.7	15.7
B	15.6	15.6
Q6201		
E	4.9	4.9
C	4.9	4.9
B	4.2	4.2
Q6202		
E	0	0
C	0	0
B	0.6	0.6
Q6203		
E	0	0
C	6.7	6.7
B	0	0

<LCD CTL>

MODE PIN NO.	REC	PLAY
IC7101		
1	2.9	2.9
2	2.9	2.9
3	0	0
4	0.5	0.5
5	4.8	4.8
IC7102		
1	2.9	2.9
2	0.5	0.5
3	0	0
4	0.5	0.5
5	4.8	4.8

<CCD>

MODE PIN NO.	EE
IC5301	
1	-7.6
2	-7.6
3	0
4	0
5	0
6	0
7	12.1
8	14.9
9	0
10	6.2
11	-8.1
12	7.4
13	1.8
14	0
Q5301	
E	11.4
C	14.9
B	12.1

<VF>

MODE PIN NO.	EE
IC7201	
1	2.6
2	0
3	2.8
4	0
5	1.8
6	2.5
7	0.9
8	0
9	0
10	0
11	9.1
12	1.9
13	0
14	1.4
15	1.4
16	2.8
17	2.8
18	0
19	0
20	1.4
21	1.4
22	2.5
23	1.4
24	1.4
25	0
26	0
27	1.4
28	1.4
29	2.8
30	2.8
31	2.6
32	0
33	3.0
34	3.0
35	3.0
36	2.8
37	2.8
38	0
39	2.8
40	0
41	6.0
42	2.1
43	6.0
44	2.2
45	6.0
46	2.2
47	12.1
48	6.0
49	4.9
50	2.6
51	2.6
52	4.1
53	2.4
54	3.1
55	5.1
56	5.1
57	3.6
58	4.9
59	2.5
60	4.9
61	0
62	3.2
63	1.6
64	0
Q7201	
E	2.9
C	4.8
B	3.5

<BL>

MODE PIN NO.	EE
Q7301	
E	0
C	4.7
B	0.5

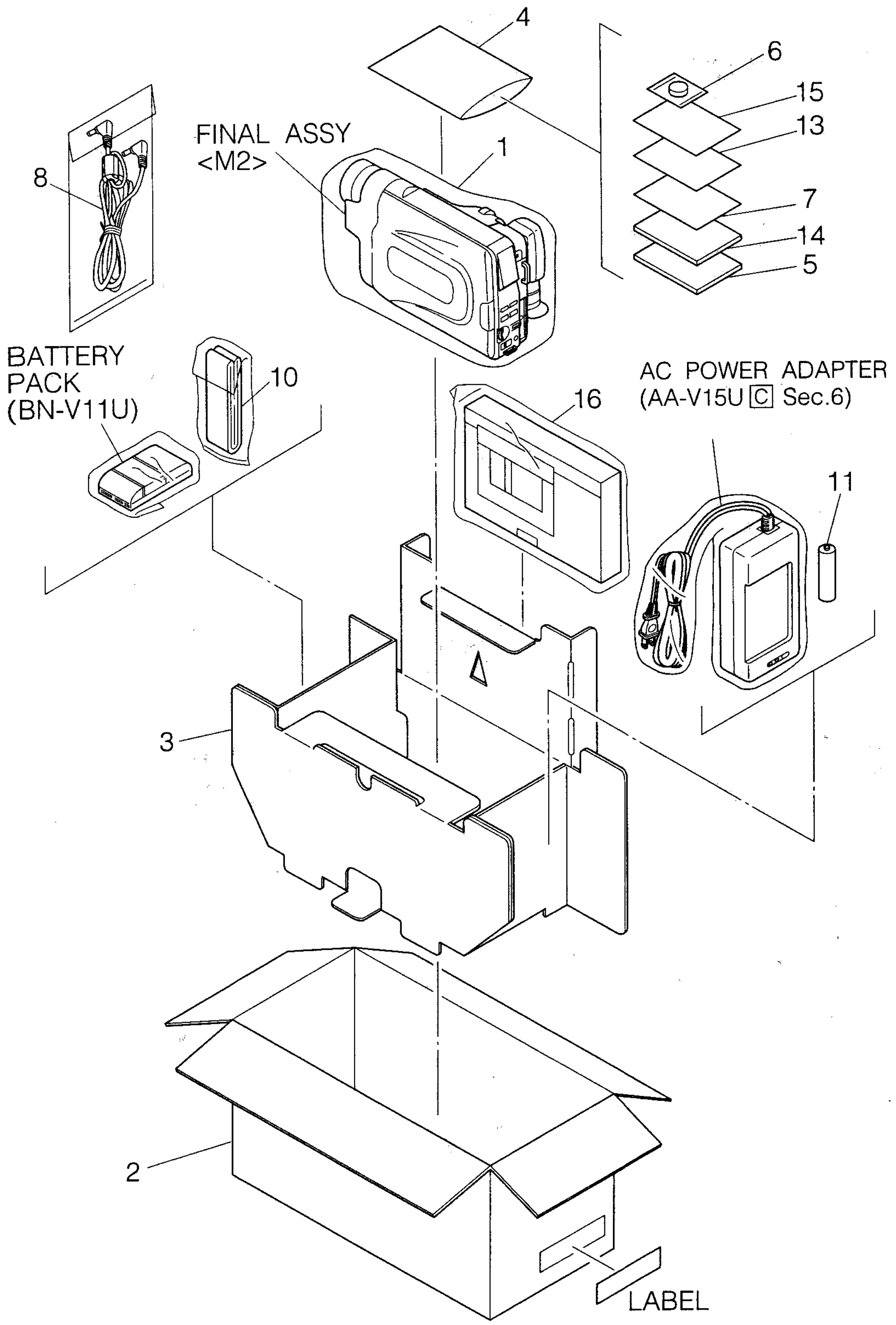
SECTION 5
PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

5.1 PACKING ASSEMBLY <M1>

The instruction manual to be provided with this product will differ according to the destination.


4
6
15
13
7
14
5
8
FINAL ASSY
<M2>
1
BATTERY
PACK
(BN-V11U)
10
AC POWER ADAPTER
(AA-V15U C Sec.6)
16
11
3
2
LABEL

* *

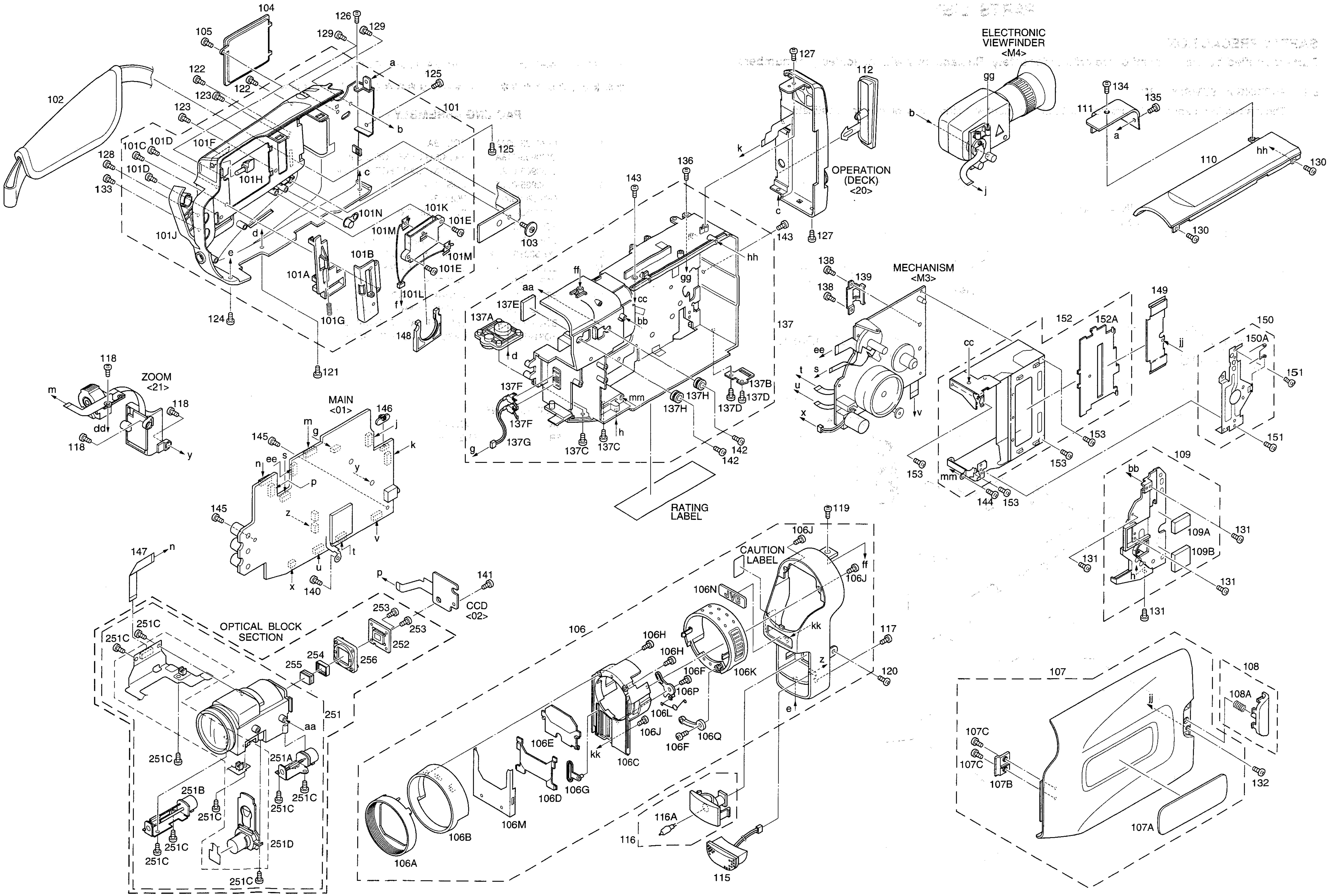
PACKING ASSEMBLY <M1>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	1	LY30023-002A	POLY BAG
	2	LY30905-018A	PACKING CASE,FOR U.S.A.
		LY30905-039A	PACKING CASE,FOR CANADA
	3	LY30965-001B	CUSHION
	4	QPA02003006	POLY BAG
⚠	5	LYT0259-001A	INST.BOOK(EN)
⚠	6	PECA0903	LI BATTERY
	7	BT-51006-1	REGIST.CARD FOR U.S.A.
	8	LYH30039-001A	CABLE ASSY, DC CORD
	10	LY20186-001A	SHOULDER STRAP
	11	R6PRPA-B	BATTERY
	13	BT-52002-1	WARRANTY CARD FOR CANADA
⚠	14	LYT0321-001A	INST.BOOK(FR) FOR CANADA
	15	BT-20071B	SER.NET CARD FOR CANADA
	16	YQ31963B-3	CASSETTE ADAPTER ASSY

- INSTRUCTIONS

EN .... ENGLISH
FR .... FRENCH

5.2 FINAL ASSEMBLY <M2>



104
105
126
129
129
a
125
101
122
122
123
123
102
101C
101D
101F
128
101D
133
101H
b
c
125
101J
d
e
101N
101K
101E
101M
101M
101E
103
101A
101B
f
101L
101G
124
148
121
127
112
ELECTRONIC VIEWFINDER <M4>
gg
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OPERATION (DECK) <20>
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RATING LABEL
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MECHANISM <M3>
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FINAL ASSEMBLY <M2>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
⚠	101	LY10122-009B	LOWER CASE ASSY
	101A	LY30885-001B	KNOB(B.RELEASE)
	101B	LY30886-001B	BKT(B.RELEASE)
	101C	QYSLSP2030D	SCREW
	101D	QYSLSP2050D	SCREW,X2
	101E	QYSLSF2055D	SPECIAL SCREW,X2
	101F	LY41380-001A	SPACER(TALLY)
	101G	LY30002-026A	COMPRES. SPRING
	101H	LY41089-001B	INDICATOR(T)
	101J	LY30891-001B	CAP(RCA JACK)
	101K	LY30888-001B	HOLDER(LITHIUM)
	101L	WJM0050-002A	E-SI C WIRE C-F
	101M	LY41140-001B	BRACKET(LITHUM),X2
	101N	LY40081-001A	CAP
	102	LY20014-001A	GRIP BELT
	103	LY30018-003A	SPECIAL SCREW
⚠	104	LY30887-001B	CAP(JIG)
	105	QYSLSP2030D	SCREW
⚠	106	LY10124-010C	FRONT COVER ASSY
	106A	LY30893-001A	HOOD
	106B	LY30894-001A	COVER(HOOD)
	106C	LY20349-001A	GUIDE(SHUTTER)
	106D	LY30895-001A	SHUTTER(1)
	106E	LY30896-001A	SHUTTER(2)
	106F	YQ43762	SPECIAL SCREW,X2
	106G	LY41075-001A	SLIDER(SHUTTER)ASSY
	106H	QYSLSF2050D	SCREW,X2
	106J	QYSLSF2060D	SCREW,X3
	106K	LY20348-001A	DIAL(SHUTTER)
	106L	LY41081-001B	TORSION SPRING
	106M	LY41128-001A	HOLD(SHUTTER)
	106N	LY40987-002A	MARK
	106P	LY41077-001A	LEVER(1)
	106Q	LY41078-001A	LEVER(2)
⚠	107	LY10126-002A	CASSETTE COVER ASSY
	107A	LY30897-001A	WINDOW
	107B	LY30898-001A	HINGE(C.COVER)
	107C	QYSLSF2050D	SCREW,X2
	108	LY30899-002B	BUTTON(PUSH)ASSY
	108A	LY30002-028D	COMPRES. SPRING
	109	LY31141-001B	UPPER CASE ASSY
	109A	LY30016-0K4A	SPACER-A
	109B	LY30016-0K5A	SPACER-A
	110	LY10129-016B	TOP COVER
	111	LY20328-001C	COVER(VF)
	112	LY30892-001A	CAP(REAR JACK)
	115	LY30861-001A	MICROPHONE
	116	LY30860-001A	DC LIGHT ASSY
	116A	YQ44266	LAMP
	117	QYSLSF2055D	SPECIAL SCREW
	118	QYSLSF2055D	SPECIAL SCREW,X3
	119	YQ43762-5	SPECIAL SCREW
	120	QYSLSF2055D	SPECIAL SCREW
	121	QYSLSF2055D	SPECIAL SCREW
	122	QYSLSF2055D	SPECIAL SCREW,X2
	123	QYSLSF2055D	SPECIAL SCREW,X2
	124	QYSLSF2090D	SCREW
	125	QYSLSF2055D	SPECIAL SCREW,X2
	126	QYSLSF2055D	SPECIAL SCREW
	127	QYSLSF2055D	SPECIAL SCREW,X2
	128	QYSLSF2090D	SCREW
	129	QYSLSF2055D	SPECIAL SCREW,X2
	130	QYSLSF2055D	SPECIAL SCREW,X2
	131	QYSLSF2055D	SPECIAL SCREW,X4
	132	QYSLSP2030D	SCREW
	133	QYSLSF2090D	SCREW
	134	QYSLSF2055D	SPECIAL SCREW
	135	QYSLSF2055D	SPECIAL SCREW
	136	QYSLSF2055D	SPECIAL SCREW
⚠	137	LY20372-001A	FRAME ASSY
	137A	LY30903-001A	BASE
	137B	LY41090-001B	HOOK
	137C	QYSLSF2060D	SCREW,X2
	137D	QYSLSF2060Z	SCREW,X2
	137E	LY30016-0H2A	SPACER-A
	137F	YQ43810	CONTACT(LIGHT),X2
	137G	WJM0003-003A	E-SI C WIRE C-F
	137H	LY41082-001A	CUSHION(OP),X2
	138	QYSPSTU1725M	SCREW,X2
	139	LY30904-001A	BKT(MECHA)
	140	QYSPSTU1725M	SCREW
	141	QYSLSP2030D	SCREW
	142	LY30018-050A	SPECIAL SCREW,X2
	143	LY41173-001A	SPECIAL SCREW,X2
	144	QYSLSF1750D	SCREW
	145	QYSLSF2055D	SPECIAL SCREW,X2
	146	LY41083-001B	KNOB(LIGHT)
	147	WJT0011-001A	E-CARD WIRE
	148	LY30889-001B	CAP(LITHIUM)
	149	LY30902-001A	BKT(C.COVER)
	150	LY30514-001C	FRONT FRAME ASSY
	150A	YQ44144-1-1	TAPE GUIDE
	151	YQ44457-3	SCREW,X2
	152	YQ31752G-23	CASSETTE HOUSING ASSY
	152A	LY30901-001A	CASSETTE COVER INSIDE
	153	YQ44457-3	SCREW,X4

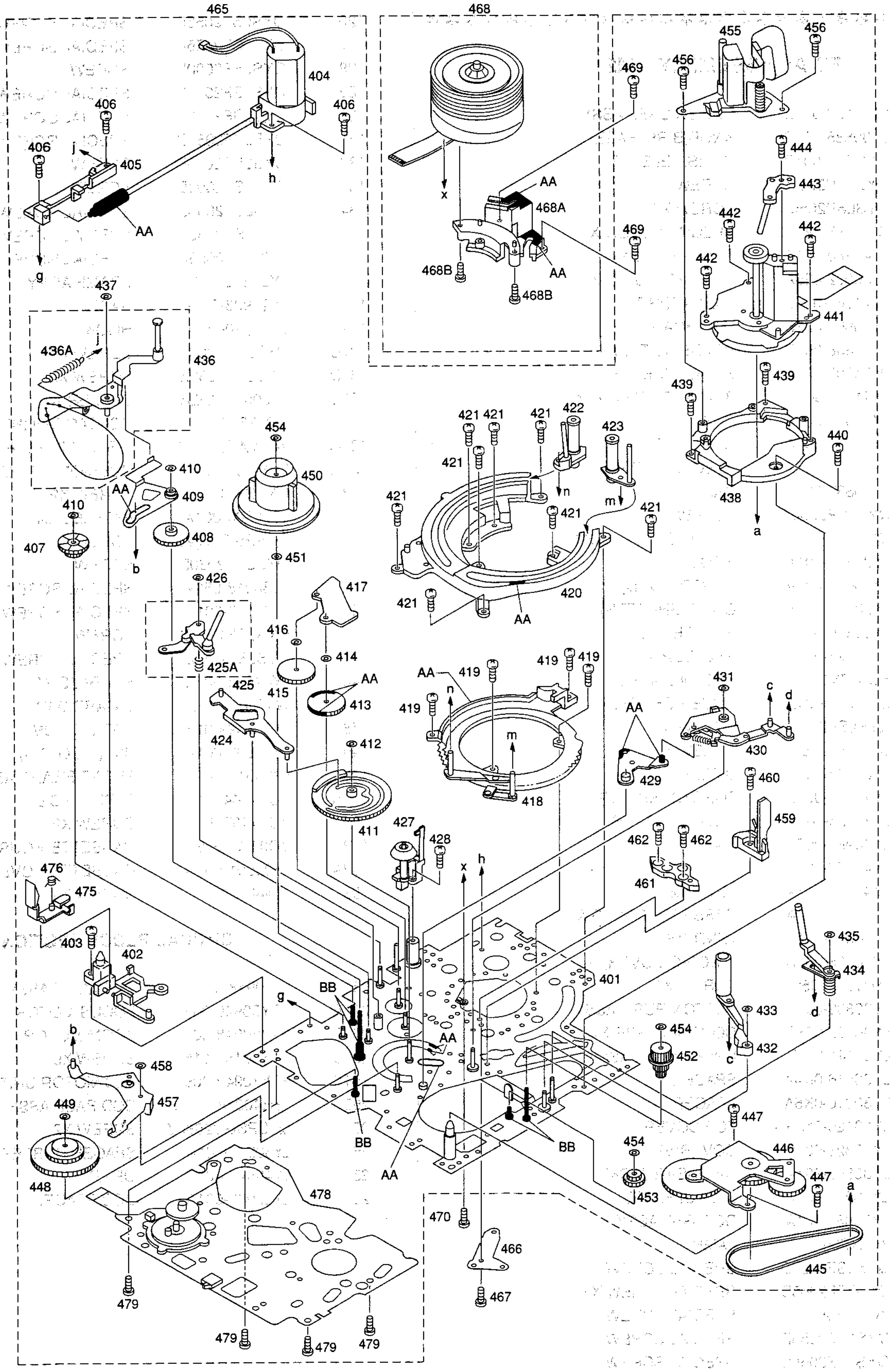
– OPTICAL BLOCK SECTION –

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	251	LY30948-001A	OP BLOCK ASSY
	251A	PTY30948-002	FOCUS MOTOR
	251B	PTY30948-001	ZOOM MOTOR
	251C	PTY30151-016	SCREW,X9
	251D	PTY30948-006	IRIS MOTOR UNIT,INCL.FPC
	252	LYH40018-001A	CCD BASE ASSY
	253	QYSPSGU2080Z	SCREW,X2
	254	LY30296-001A	SPACER RUBBER
	255	LY40549-001A	OP LPF
	256	LY20086-001A	CCD SPACER

5.3 MECHANISM ASSEMBLY <M3>

BEWARE OF BOGUS PARTS

Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.



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Classifi-cation	Part No.	Symbol in drawing
Grease	KYODO-SH-P	AA
Oil	YTU94027	BB

NOTE: The section marked in AA and BB indicate lubrication and greasing areas.

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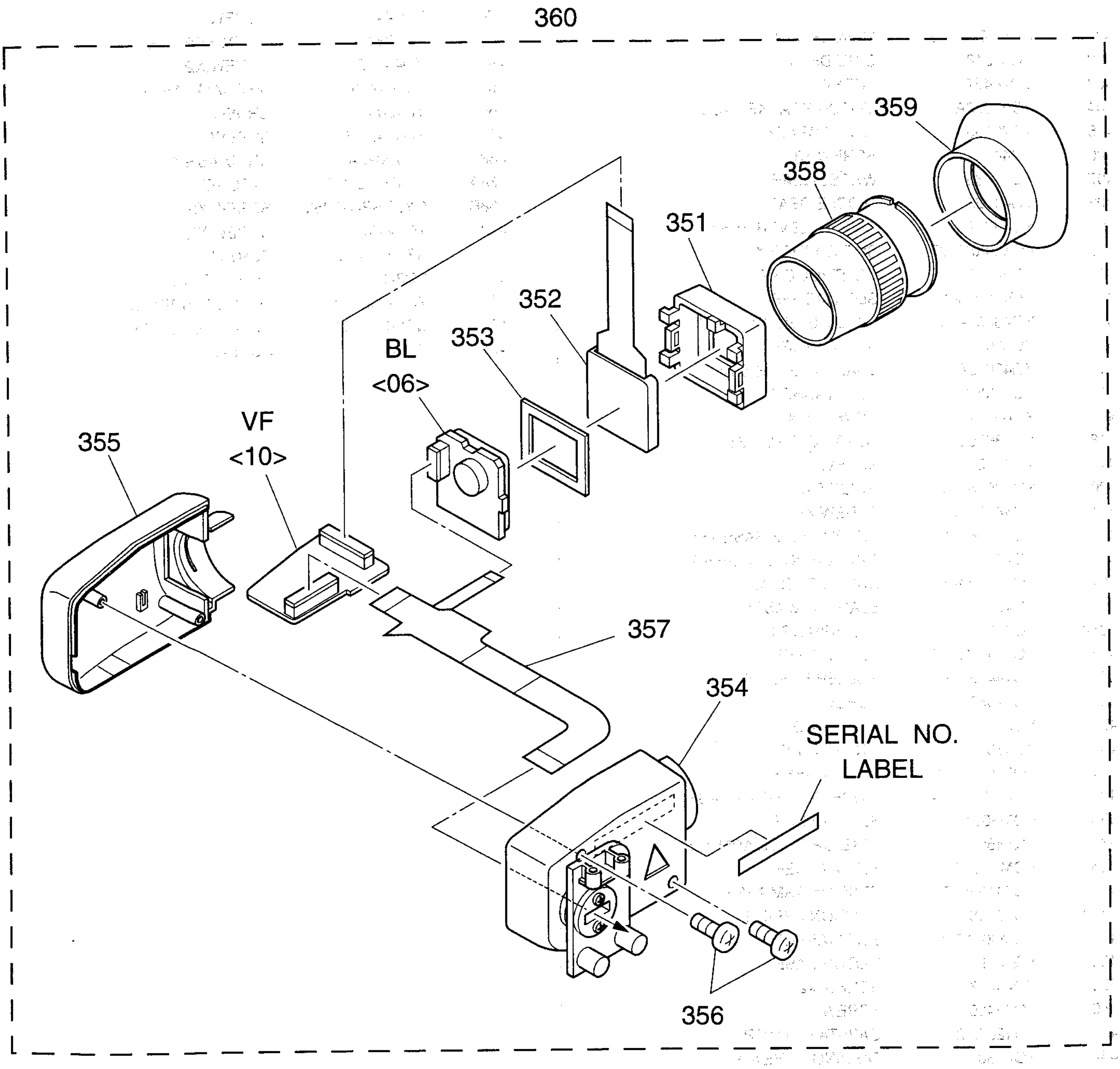
MECHANISM ASSEMBLY <M3>

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION
401	LY20182-001B	MAIN DECK ASSY
402	YQ32218	C.GUIDE(L)
403	YQ44457	SCREW
404	YQ31856A-3	MOTOR BRACKET ASSY
405	YQ20793	WORM BRACKET
406	YQ44457	SCREW,X3
407	YQ31783	WHEEL GEAR
408	YQ44328	MIDDLE GEAR
409	YQ43849B	CANCEL LEVER ASSY
410	PQM30017-27	SLIT WASHER,X2
411	YQ20827-2-1	CONTROL CAM
412	LY30015-001A	SLIT WASHER
413	YQ43853A	LOADING GEAR(T)ASSY
414	PQM30017-27	SLIT WASHER
415	YQ43852A	LOADING GEAR(S)ASSY
416	PQM30017-27	SLIT WASHER
417	YQ43634	COVER PLATE
418	YQ43635C-12	LOADING RING ASSY
419	YQ44457	SCREW,X4
420	YQ10516-1-11	GUIDE RAIL
421	YQ44457-5	SCREW,X8
422	YQ43646A-4	SUPPLY POLE BASE ASSY
423	YQ43654A-11	TAKE-UP POLE BASE ASSY
424	YQ44439A-2	DRIVE LEVER ASSY
425	YQ43663C-7	SLANT ARM ASSY
425A	YQ43670	TOR.SPRING(S)
426	PQM30017-27	SLIT WASHER
427	YQ44436A-3	ROLLER BASE ASSY
428	YQ44457	SCREW
429	YQ32230	LINK LEVER
430	YQ43682B	LINK ARM ASSY
431	PQM30017-25	SLIT WASHER
432	LY40018-001A	PINCH ROLLER ARM ASSY
433	PQM30017-25	SLIT WASHER
434	YQ44591B	TAKE-UP GUIDE ARM ASSY
435	PQM30017-27	SLIT WASHER
436	YQ44199C-7	TENSION ARM ASSY
436A	YQ43848-1-2	TENSION SPRING
437	PQM30017-27	SLIT WASHER
438	YQ20797-1-3	MOTOR BASE
439	YQ44457	SCREW,X2
440	YQ44460	SCREW
441	YU42078-2	CAPSTAN MOTOR
442	YQ44304	TAPPING SCREW,X3
443	YQ43708A-3	SLANT POLE BASE ASSY
444	YQ44304	TAPPING SCREW
445	YQ43710	TIMING BELT
446	YQ43711B-10	CENTER PULLEY UNIT
447	YQ44457-2	SCREW,X2
448	YQ43729A-2	SUPPLY CLUCH ASSY
449	PQM30017-27	SLIT WASHER
450	YQ31861-1-7	REEL DISC
451	Q03093-835	WASHER
452	YQ31787	TAKE-UP GEAR
453	YQ43737	BRAKE SUB GEAR
454	PQM30017-27	SLIT WASHER,X3
455	YQ43738D	A/C HEAD UNIT
456	SPSN1750Z	SCREW,X2
457	YQ43743B	EJECT LEVER ASSY
458	PQM30017-27	SLIT WASHER
459	YQ31833-1-1	LED GUIDE
460	YQ44457	SCREW
461	YQ43818	DRUM SPACER
462	YQ44457	SCREW,X2
465	YMA0027A	MECHA(A) ASSY
466	YU42051	BRUSH
467	YQ44457-3	SCREW
468	YDV2090A	DRUM ASSY
468A	YDM1003-1-5	CATCHER
468B	QYSPSPU1735M	SCREW,X2
469	YQ44457	SCREW,X2
470	SPSH1740Z	SCREW
475	YQ32219	SW.LEVER(L)
476	YQ44422-1-1	TORSION SPRING
478	QSW0745-001	ROTARY ENCODER
479	YQ44457-2	SCREW,X4

5.4 ELECTRONIC VIEWFINDER ASSEMBLY <M4>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SERIAL NO.
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# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION
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ELECTRONIC VIEWFINDER ASSEMBLY <M4>		
351	LY20336-001A	HOLDER(LCD)
352	LY40127-001A	SPACER(LCD)
353	QLD0056-001	LCD MODULE
⚠ 354	LY30914-001A	BOTTOM CASE ASSY
⚠ 355	LY30915-001A	TOP CASE ASSY
356	QYSPSGT1760D	SCREW,X2
357	QAL0136-004	FPC
358	PTY20307-200	LENS ASSY
359	PTY20307-201	EYE CAP
⚠ 360	LYH20038-002A	EVF ASSY

5.5 ELECTRICAL PARTS LIST

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MAIN BOARD ASSEMBLY <01>

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION
PW	YB10243UC-01	MAIN BOARD ASSY
IC101	UPD703008Y-J01	IC
	or UPD70F3008Y-J01	IC
IC102	S-81333HG-KF-X	IC
IC103	IC-PST9327U-X	IC
IC104	RS5C314	IC
IC105	NM25C040LZEM8	IC
	or AT25040N-10SC-X	IC
	or X25040S-2.7-X	IC
IC108	JCY0075	IC
IC109	UPD6462GS-909-X	IC(MICRO C ROM)
IC110	TC74VHC00FT	IC
IC111	MC74HC08ADT	IC(DIGITAL)
IC112	TC7W66F	IC(DIGITAL)
IC1201	BA8400FV	IC
IC1601	BA6865KV	IC
IC1802	BA10358F	IC
IC2071	BA3308F-XE	IC
IC3001	HA118316F	IC
	or HA118316SF	IC
IC3101	NJM2534V	IC
IC3102	NJM2535V	IC
IC3501	M52385FP	IC
IC4001	JCY0099	IC
IC4002	MM1385RN	IC
IC4003	MM1304AJ	IC
IC4005	MM1385EN	IC
IC4006	TMS4C2973-28-X	IC
IC4201	UPC358G2/5/-W	IC
IC4202	BA10324AFV-XE	IC
IC4203	TC7S08F	IC(DIGITAL)
IC4301	M62367GP	IC
IC4501	UPD16835G3	IC
IC5201	JCY0071A	IC
IC5202	HD49323AF	IC
IC5203	MM1385HN	IC
IC6001	MB3785APFV	IC
IC6002	MM1257AM	IC
IC7101	TC7SET02FU	IC(DIGITAL)
IC7102	TC7SET08FU	IC(DIGITAL)
Q101	2SA1774/RS/-X	TRANSISTOR
Q102	DTC144EE	TRANSISTOR
Q107	DTC144EE	TRANSISTOR
Q108	2SC4617/QR/-X	TRANSISTOR
Q109	DTC124EE	TRANSISTOR
Q110	2SA1774/RS/-X	TRANSISTOR
Q111	DTC144EE	TRANSISTOR
Q112	DTA124EE	TRANSISTOR
Q1801	RPM-22PB	PHOTO TRANSISTOR
Q1802	2SC4617/QRS/-X	TRANSISTOR
Q2001	2SA1774/QR/-X	TRANSISTOR
Q2002	2SA1774/QR/-X	TRANSISTOR
Q2003	2SC4617/QR/-X	TRANSISTOR
Q2004	2SC4097/QR/-X	TRANSISTOR
Q2005	DTC144EE	TRANSISTOR
Q2006	DTC144EE	TRANSISTOR
Q2007	UMX1N	PAIR TRANSISTOR
Q2008	DTA114EE	TRANSISTOR
Q2009	DTC144EE	TRANSISTOR
Q2011	DTC144EE	TRANSISTOR
Q2012	DTC144EE	TRANSISTOR
Q2061	2SC4617/QR/-X	TRANSISTOR
Q2062	2SC4617/QR/-X	TRANSISTOR
Q3006	2SA1774/QR/-X	TRANSISTOR
Q3008	HN1C01FU/G/-X	PAIR TRANSISTOR
Q3011	2SC4617/QR/-X	TRANSISTOR
Q3101	DTA144EE	TRANSISTOR
Q3102	HN1C01FU/G/-X	PAIR TRANSISTOR
Q3103	2SC4617/QR/-X	TRANSISTOR
Q3104	HN1C01FU/G/-X	PAIR TRANSISTOR
Q3105	HN1A01FU/G/-X	PAIR TRANSISTOR
Q3106	HN1B01FU/G/-X	PAIR TRANSISTOR
Q3107	2SA1774/QR/-X	TRANSISTOR
Q3501	HN1C01FU/G/-X	PAIR TRANSISTOR
Q3502	HN1C01FU/G/-X	PAIR TRANSISTOR
Q3503	HN1C01FU/G/-X	PAIR TRANSISTOR
Q3506	DTC144EE	TRANSISTOR
Q3509	2SC4617/QRS/-X	TRANSISTOR
Q3901	HN1C01FU/G/-X	PAIR TRANSISTOR
Q3903	DTC114EE	TRANSISTOR
Q3904	DTA114EE	TRANSISTOR
Q3905	DTC144EE	TRANSISTOR
Q4001	2SC4617/RS/-X	TRANSISTOR
Q4002	2SC4617/RS/-X	TRANSISTOR
Q4005	2SC4617/RS/-X	TRANSISTOR
Q4006	2SC4617/RS/-X	TRANSISTOR
Q4007	2SC4617/RS/-X	TRANSISTOR
Q4201	2SC4617/QR/-X	TRANSISTOR
	or 2SC4738/YG/-X	TRANSISTOR
Q4202	2SA1577/QR/-X	TRANSISTOR
Q4203	DTC144EE	TRANSISTOR
	or RN1104	TRANSISTOR
Q4501	2SC4617/RS/-X	TRANSISTOR
Q4502	2SC4617/RS/-X	TRANSISTOR
Q6001	MPL1	TRANSISTOR
Q6002	MPL1	TRANSISTOR
Q6003	MPL1	TRANSISTOR
Q6004	2SB1121/ST/-X	TRANSISTOR
Q6005	2SB1121/ST/-X	TRANSISTOR
Q6006	2SC4617/QR/-X	TRANSISTOR
Q6007	2SA1774/QR/-X	TRANSISTOR
Q6009	2SC4617/QR/-X	TRANSISTOR
Q6201	2SD1628/FG/-X	TRANSISTOR
Q6202	2SA1774/QR/-X	TRANSISTOR
Q6203	2SC4617/QR/-X	TRANSISTOR
QA1601	BA6254FS	TR ARRAY
QA1602	BA6254FS	TR ARRAY
D101	MA8075/M/-X	ZENER DIODE
D103	1SS355	DIODE
D104	RB751V-40-X	SB DIODE
D501	MA8068	ZENER DIODE
D502	MA8068	ZENER DIODE
D1801	TLSU1002/LM/-X	LE DIODE
D3101	DAN222	DIODE
D3103	DAN222	DIODE
D5201	1SS355	DIODE
D6001	1SS355	DIODE
D6002	1SS355	DIODE

⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
D6003	1SS355	DIODE	
D6004	MA8091/L/-X	ZENER DIODE	
D7101	RB715F	SB DIODE	
⚠ DA101	RB715F	SB DIODE	
DA105	RB717F	SB DIODE	
DA107	DAN222	DIODE	
R101	NRSA63J-104X	MG RESISTOR	100k ,1/16W
R102	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R103	NRSA63J-561X	MG RESISTOR	560 ,1/16W
R104	NRVA63D-153X	CMF RESISTOR	15k ,1/16W
R105	NRVA63D-243X	CMF RESISTOR	24k ,1/16W
R106	NRVA63D-183X	CMF RESISTOR	18k ,1/16W
R107	NRSA63J-472X	MG RESISTOR	4.7k ,1/16W
R108	NRSA63J-222X	MG RESISTOR	2.2k ,1/16W
R110	NRSA63J-472X	MG RESISTOR	4.7k ,1/16W
R111	NRSA63J-222X	MG RESISTOR	2.2k ,1/16W
R112	NRSA63J-474X	MG RESISTOR	470k ,1/16W
R113	NRSA63J-105X	MG RESISTOR	1M ,1/16W
R114	NRSA63J-221X	MG RESISTOR	220 ,1/16W
R115	NRSA63J-124X	MG RESISTOR	120k ,1/16W
R116	NRSA63J-221X	MG RESISTOR	220 ,1/16W
R117	NRSA63J-105X	MG RESISTOR	1M ,1/16W
R118	NRSA63J-474X	MG RESISTOR	470k ,1/16W
R119	NRSA63J-474X	MG RESISTOR	470k ,1/16W
R120	NRSA63J-472X	MG RESISTOR	4.7k ,1/16W
R122	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R124	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R125	NRSA63J-474X	MG RESISTOR	470k ,1/16W
R126	NRSA63J-474X	MG RESISTOR	470k ,1/16W
R127	NRSA63J-473X	MG RESISTOR	47k ,1/16W
R128	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R129	NRSA63J-273X	MG RESISTOR	27k ,1/16W
R130	NRSA63J-331X	MG RESISTOR	330 ,1/16W
R131	NRSA63J-393X	MG RESISTOR	39k ,1/16W
R132	NRSA63J-562X	MG RESISTOR	5.6k ,1/16W
R133	NRSA63J-821X	MG RESISTOR	820 ,1/16W
R134	NRSA63J-101X	MG RESISTOR	100 ,1/16W
R135	NRSA63J-273X	MG RESISTOR	27k ,1/16W
R136	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R137	NRSA63J-474X	MG RESISTOR	470k ,1/16W
R138	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R139	NRSA63J-474X	MG RESISTOR	470k ,1/16W
R140	NRSA63J-183X	MG RESISTOR	18k ,1/16W
R141	NRSA63J-473X	MG RESISTOR	47k ,1/16W
R144	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R145	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
⚠ R146	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R147	NRSA63J-105X	MG RESISTOR	1M ,1/16W
R148	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R149	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R150	NRSA63J-105X	MG RESISTOR	1M ,1/16W
R151	NRSA63J-105X	MG RESISTOR	1M ,1/16W
R152	NRSA63J-105X	MG RESISTOR	1M ,1/16W
R153	NRSA63J-104X	MG RESISTOR	100k ,1/16W
R154	NRSA63J-332X	MG RESISTOR	3.3k ,1/16W
R155	NRSA63J-474X	MG RESISTOR	470k ,1/16W
R156	NRSA63J-473X	MG RESISTOR	47k ,1/16W
R157	NRSA63J-104X	MG RESISTOR	100k ,1/16W
R158	NRSA63J-104X	MG RESISTOR	100k ,1/16W
R159	NRSA63J-104X	MG RESISTOR	100k ,1/16W
R160	NRSA63J-105X	MG RESISTOR	1M ,1/16W
R161	NRSA63J-105X	MG RESISTOR	1M ,1/16W
R162	NRSA63J-105X	MG RESISTOR	1M ,1/16W
R163	NRSA63J-222X	MG RESISTOR	2.2k ,1/16W
R165	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R166	NRSA63J-272X	MG RESISTOR	2.7k ,1/16W
R167	NRSA63J-474X	MG RESISTOR	470k ,1/16W
R168	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R169	NRSA63J-105X	MG RESISTOR	1M ,1/16W
R170	NRSA63J-105X	MG RESISTOR	1M ,1/16W
R173	NRSA63J-681X	MG RESISTOR	680 ,1/16W
R174	NRSA63J-273X	MG RESISTOR	27k ,1/16W
R178	NRSA63J-183X	MG RESISTOR	18k ,1/16W
R179	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R180	NRSA63J-222X	MG RESISTOR	2.2k ,1/16W
R181	NRSA63J-222X	MG RESISTOR	2.2k ,1/16W
R183	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R184	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R185	NRSA63J-473X	MG RESISTOR	47k ,1/16W
R186	NRSA63J-473X	MG RESISTOR	47k ,1/16W
R187	NRSA63J-153X	MG RESISTOR	15k ,1/16W
R188	NRSA63J-222X	MG RESISTOR	2.2k ,1/16W
R189	NRSA63J-222X	MG RESISTOR	2.2k ,1/16W
R192	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R193	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R194	NRSA63J-222X	MG RESISTOR	2.2k ,1/16W
R501	NRSA63J-105X	MG RESISTOR	1M ,1/16W
R503	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R504	NRSA63J-221X	MG RESISTOR	220 ,1/16W
R505	NRSA63J-331X	MG RESISTOR	330 ,1/16W
R1201	NRSA63J-824X	MG RESISTOR	820k ,1/16W
R1202	NRSA63J-821X	MG RESISTOR	820 ,1/16W
R1203	NRSA63J-472X	MG RESISTOR	4.7k ,1/16W
R1204	NRSA63J-274X	MG RESISTOR	270k ,1/16W
R1601	NRSA63J-471X	MG RESISTOR	470 ,1/16W
R1602	NRSA63J-154X	MG RESISTOR	150k ,1/16W
R1603	NRSA63J-152X	MG RESISTOR	1.5k ,1/16W
R1604	NRSA63J-224X	MG RESISTOR	220k ,1/16W
R1605	NRSA63J-273X	MG RESISTOR	27k ,1/16W
R1606	NRV142F-R33X	CMF RESISTOR	0.33 ,1/4W
R1607	NRSA63J-683X	MG RESISTOR	68k ,1/16W
R1608	NRSA63J-153X	MG RESISTOR	15k ,1/16W
R1609	NRS12BK-R68W	MG RESISTOR	0.68 ,1/2W
R1610	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R1611	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R1612	NRSA63J-104X	MG RESISTOR	100k ,1/16W
R1613	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R1614	NRSA63J-154X	MG RESISTOR	150k ,1/16W
R1615	NRSA63J-474X	MG RESISTOR	470k ,1/16W
R1616	NRVA63D-202X	CMF RESISTOR	2k ,1/16W
R1617	NRSA63J-473X	MG RESISTOR	47k ,1/16W
R1618	NRSA63J-183X	MG RESISTOR	18k ,1/16W
R1619	NRSA63J-393X	MG RESISTOR	39k ,1/16W
R1620	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R1621	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R1622	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R1623	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R1624	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R1625	NRSA63J-271X	MG RESISTOR	270 ,1/16W
R1626	NRSA63J-271X	MG RESISTOR	270 ,1/16W
R1627	NRSA63J-271X	MG RESISTOR	270 ,1/16W
R1628	NRSA63J-271X	MG RESISTOR	270 ,1/16W

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R1629	NRSA63J-684X	MG RESISTOR	680k ,1/16W
R1630	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R1631	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R1801	NRSA63J-302X	MG RESISTOR	3k ,1/16W
R1802	NRSA63J-391X	MG RESISTOR	390 ,1/16W
R1805	NRSA63J-182X	MG RESISTOR	1.8k ,1/16W
R1806	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R1807	NRSA63J-684X	MG RESISTOR	680k ,1/16W
R1808	NRSA63J-222X	MG RESISTOR	2.2k ,1/16W
R1809	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R1810	NRSA63J-824X	MG RESISTOR	820k ,1/16W
R1811	NRSA63J-104X	MG RESISTOR	100k ,1/16W
R1812	NRSA63J-683X	MG RESISTOR	68k ,1/16W
R1813	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R1814	NRSA63J-822X	MG RESISTOR	8.2k ,1/16W
R1815	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R1816	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R2001	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R2002	NRSA63J-222X	MG RESISTOR	2.2k ,1/16W
R2003	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R2004	NRSA63J-222X	MG RESISTOR	2.2k ,1/16W
R2005	NRSA63J-473X	MG RESISTOR	47k ,1/16W
R2006	NRSA63J-473X	MG RESISTOR	47k ,1/16W
R2007	NRSA63J-153X	MG RESISTOR	15k ,1/16W
R2008	NRSA63J-3R3X	MG RESISTOR	3.3 ,1/16W
R2009	NRVA63D-512X	CMF RESISTOR	5.1k ,1/16W
R2010	NRSA63J-153X	MG RESISTOR	15k ,1/16W
R2011	NRSA63J-472X	MG RESISTOR	4.7k ,1/16W
R2012	NRSA63J-272X	MG RESISTOR	2.7k ,1/16W
R2013	NRSA63J-820X	MG RESISTOR	82 ,1/16W
R2014	NRSA63J-820X	MG RESISTOR	82 ,1/16W
R2015	NRSA63J-820X	MG RESISTOR	82 ,1/16W
R2016	NRVA63D-103X	CMF RESISTOR	10k ,1/16W
R2019	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R2021	NRSA63J-332X	MG RESISTOR	3.3k ,1/16W
R2022	NRSA63J-104X	MG RESISTOR	100k ,1/16W
R2023	NRSA63J-121X	MG RESISTOR	120 ,1/16W
R2024	NRSA63J-823X	MG RESISTOR	82k ,1/16W
R2026	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R2027	NRSA63J-101X	MG RESISTOR	100 ,1/16W
R2028	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R2029	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R2030	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R2033	NRSA63J-153X	MG RESISTOR	15k ,1/16W
R2034	NRSA63J-153X	MG RESISTOR	15k ,1/16W
R2036	NRVA63D-332X	CMF RESISTOR	3.3k ,1/16W
R2051	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R2052	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R2053	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R2061	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R2062	NRSA63J-104X	MG RESISTOR	100k ,1/16W
R2063	NRSA63J-104X	MG RESISTOR	100k ,1/16W
R2064	NRSA63J-104X	MG RESISTOR	100k ,1/16W
R2065	NRSA63J-183X	MG RESISTOR	18k ,1/16W
R2066	NRSA63J-123X	MG RESISTOR	12k ,1/16W
R2071	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R2072	NRSA63J-472X	MG RESISTOR	4.7k ,1/16W
R2073	NRSA63J-561X	MG RESISTOR	560 ,1/16W
R2074	NRSA63J-222X	MG RESISTOR	2.2k ,1/16W
R2075	NRSA63J-564X	MG RESISTOR	560k ,1/16W
R2076	NRSA63J-104X	MG RESISTOR	100k ,1/16W
R2077	NRSA63J-105X	MG RESISTOR	1M ,1/16W
R2078	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R2079	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R2080	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R2081	NRSA63J-563X	MG RESISTOR	56k ,1/16W
R3001	NRSA63J-682X	MG RESISTOR	6.8k ,1/16W
R3002	NRSA63J-152X	MG RESISTOR	1.5k ,1/16W
R3005	NRSA63J-562X	MG RESISTOR	5.6k ,1/16W
R3009	NRSA63J-332X	MG RESISTOR	3.3k ,1/16W
R3011	NRSA63J-222X	MG RESISTOR	2.2k ,1/16W
R3012	NRSA63J-222X	MG RESISTOR	2.2k ,1/16W
R3013	NRSA63J-222X	MG RESISTOR	2.2k ,1/16W
R3016	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R3017	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R3023	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R3025	NRSA63J-273X	MG RESISTOR	27k ,1/16W
R3026	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R3028	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R3029	NRSA63J-152X	MG RESISTOR	1.5k ,1/16W
R3030	NRSA63J-222X	MG RESISTOR	2.2k ,1/16W
R3031	NRSA63J-561X	MG RESISTOR	560 ,1/16W
R3034	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R3035	NRSA63J-333X	MG RESISTOR	33k ,1/16W
R3036	NRSA63J-333X	MG RESISTOR	33k ,1/16W
R3037	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R3101	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R3102	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R3103	NRSA63J-332X	MG RESISTOR	3.3k ,1/16W
R3104	NRSA63J-562X	MG RESISTOR	5.6k ,1/16W
R3109	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R3110	NRSA63J-822X	MG RESISTOR	8.2k ,1/16W
R3111	NRSA63J-392X	MG RESISTOR	3.9k ,1/16W
R3113	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R3114	NRSA63J-822X	MG RESISTOR	8.2k ,1/16W
R3115	NRSA63J-222X	MG RESISTOR	2.2k ,1/16W
R3116	NRSA63J-821X	MG RESISTOR	820 ,1/16W
R3117	NRSA63J-821X	MG RESISTOR	820 ,1/16W
R3118	NRSA63J-821X	MG RESISTOR	820 ,1/16W
R3119	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R3120	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R3121	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R3122	NRSA02J-750X	MG RESISTOR	75 ,1/10W
R3123	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R3129	NRSA63J-152X	MG RESISTOR	1.5k ,1/16W
R3130	NRSA63J-152X	MG RESISTOR	1.5k ,1/16W
R3132	NRSA63J-222X	MG RESISTOR	2.2k ,1/16W
R3133	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R3134	NRSA63J-222X	MG RESISTOR	2.2k ,1/16W
R3136	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R3138	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R3139	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R3140	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R3501	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R3503	NRSA63J-471X	MG RESISTOR	470 ,1/16W
R3504	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R3506	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R3508	NRSA63J-471X	MG RESISTOR	470 ,1/16W
R3509	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R3515	NRSA63J-243X	MG RESISTOR	24k ,1/16W
R3519	NRSA63J-681X	MG RESISTOR	680 ,1/16W
R3520	NRSA63J-332X	MG RESISTOR	3.3k ,1/16W

⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R3526	NRSA63J-562X	MG RESISTOR	5.6k ,1/16W
R3527	NRSA63J-122X	MG RESISTOR	1.2k ,1/16W
R3528	NRSA63J-561X	MG RESISTOR	560 ,1/16W
R3530	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R3532	NRSA63J-472X	MG RESISTOR	4.7k ,1/16W
R3533	NRSA63J-472X	MG RESISTOR	4.7k ,1/16W
R3901	NRSA63J-182X	MG RESISTOR	1.8k ,1/16W
R3903	NRSA63J-393X	MG RESISTOR	39k ,1/16W
R3904	NRSA63J-393X	MG RESISTOR	39k ,1/16W
R3905	NRSA63J-100X	MG RESISTOR	10 ,1/16W
R3906	NRSA63J-100X	MG RESISTOR	10 ,1/16W
R4002	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R4004	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R4005	NRVA63D-153X	CMF RESISTOR	15k ,1/16W
R4006	NRVA63D-912X	CMF RESISTOR	9.1k ,1/16W
R4007	NRVA63D-153X	CMF RESISTOR	15k ,1/16W
R4008	NRVA63D-163X	CMF RESISTOR	16k ,1/16W
R4009	NRVA63D-153X	CMF RESISTOR	15k ,1/16W
R4010	NRVA63D-103X	CMF RESISTOR	10k ,1/16W
R4011	NRSA63J-272X	MG RESISTOR	2.7k ,1/16W
R4012	NRSA63J-272X	MG RESISTOR	2.7k ,1/16W
R4013	NRSA63J-272X	MG RESISTOR	2.7k ,1/16W
R4027	NRSA63J-122X	MG RESISTOR	1.2k ,1/16W
R4028	NRSA63J-561X	MG RESISTOR	560 ,1/16W
R4038	NRSA63J-561X	MG RESISTOR	560 ,1/16W
R4039	NRSA63J-152X	MG RESISTOR	1.5k ,1/16W
R4040	NRSA63J-152X	MG RESISTOR	1.5k ,1/16W
R4041	NRVA63D-103X	CMF RESISTOR	10k ,1/16W
R4042	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R4051	NRSA63J-151X	MG RESISTOR	150 ,1/16W
R4052	NRSA63J-101X	MG RESISTOR	100 ,1/16W
R4053	NRSA63J-101X	MG RESISTOR	100 ,1/16W
R4054	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R4056	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R4062	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R4201	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R4202	NRSA63J-563X	MG RESISTOR	56k ,1/16W
R4203	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R4205	NRSA63J-474X	MG RESISTOR	470k ,1/16W
R4207	NRSA63J-243X	MG RESISTOR	24k ,1/16W
R4208	NRSA63J-105X	MG RESISTOR	1M ,1/16W
R4209	NRSA63J-105X	MG RESISTOR	1M ,1/16W
R4211	NRSA63J-391X	MG RESISTOR	390 ,1/16W
R4214	NRSA63J-104X	MG RESISTOR	100k ,1/16W
R4215	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R4216	NRSA63J-472X	MG RESISTOR	4.7k ,1/16W
R4217	NRSA63J-104X	MG RESISTOR	100k ,1/16W
R4218	NRSA63J-472X	MG RESISTOR	4.7k ,1/16W
R4219	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R4223	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R4224	NRSA63J-104X	MG RESISTOR	100k ,1/16W
R4225	NRSA63J-683X	MG RESISTOR	68k ,1/16W
R4226	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R4227	NRSA63J-334X	MG RESISTOR	330k ,1/16W
R4228	NRSA63J-154X	MG RESISTOR	150k ,1/16W
R4229	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R4230	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R4231	NRSA63J-152X	MG RESISTOR	1.5k ,1/16W
R4232	NRSA63J-333X	MG RESISTOR	33k ,1/16W
R4233	NRSA63J-223X	MG RESISTOR	22k ,1/16W
R4501	NRSA63J-223X	MG RESISTOR	22k ,1/16W

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R4502	NRSA63J-182X	MG RESISTOR	1.8k ,1/16W
R4503	NRSA63J-333X	MG RESISTOR	33k ,1/16W
R4504	NRSA63J-333X	MG RESISTOR	33k ,1/16W
R4505	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R4506	NRSA63J-104X	MG RESISTOR	100k ,1/16W
⚠ R4507	NRSA63J-8R2X	MG RESISTOR	8.2 ,1/16W
⚠ R4508	NRSA63J-8R2X	MG RESISTOR	8.2 ,1/16W
⚠ R4509	NRSA63J-8R2X	MG RESISTOR	8.2 ,1/16W
⚠ R4510	NRSA63J-8R2X	MG RESISTOR	8.2 ,1/16W
R4511	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R4512	NRSA63J-151X	MG RESISTOR	150 ,1/16W
R4513	NRSA63J-151X	MG RESISTOR	150 ,1/16W
R4515	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R4516	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R5201	NRSA63J-101X	MG RESISTOR	100 ,1/16W
R5202	NRSA63J-101X	MG RESISTOR	100 ,1/16W
R5203	NRSA63J-101X	MG RESISTOR	100 ,1/16W
R5204	NRSA63J-101X	MG RESISTOR	100 ,1/16W
R5205	NRSA63J-100X	MG RESISTOR	10 ,1/16W
R5207	NRSA63J-100X	MG RESISTOR	10 ,1/16W
R5208	NRSA63J-100X	MG RESISTOR	10 ,1/16W
R5209	NRSA63J-100X	MG RESISTOR	10 ,1/16W
R5210	NRSA63J-100X	MG RESISTOR	10 ,1/16W
R5211	NRSA63J-100X	MG RESISTOR	10 ,1/16W
R5212	NRSA63J-100X	MG RESISTOR	10 ,1/16W
R5213	NRSA63J-104X	MG RESISTOR	100k ,1/16W
R5217	NRSA63J-472X	MG RESISTOR	4.7k ,1/16W
R5228	NRSA63J-104X	MG RESISTOR	100k ,1/16W
R5229	NRSA63J-243X	MG RESISTOR	24k ,1/16W
R6002	NRSA63J-563X	MG RESISTOR	56k ,1/16W
R6003	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R6004	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R6006	NRSA63J-823X	MG RESISTOR	82k ,1/16W
R6007	NRSA63J-223X	MG RESISTOR	22k ,1/16W
R6008	NRSA63J-682X	MG RESISTOR	6.8k ,1/16W
R6009	NRSA63J-683X	MG RESISTOR	68k ,1/16W
R6010	NRVA63D-562X	CMF RESISTOR	5.6k ,1/16W
R6011	NRVA63D-113X	CMF RESISTOR	11k ,1/16W
R6012	NRVA63D-103X	CMF RESISTOR	10k ,1/16W
R6013	NRVA63D-274X	CMF RESISTOR	270k ,1/16W
R6014	NRVA63D-104X	CMF RESISTOR	100k ,1/16W
R6016	NRVA63D-113X	CMF RESISTOR	11k ,1/16W
R6017	NRVA63D-103X	CMF RESISTOR	10k ,1/16W
R6020	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R6021	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R6022	NRSA63J-471X	MG RESISTOR	470 ,1/16W
R6023	NRSA63J-391X	MG RESISTOR	390 ,1/16W
R6024	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R6026	NRVA63D-303X	CMF RESISTOR	30k ,1/16W
R6027	NRVA63D-103X	CMF RESISTOR	10k ,1/16W
R6028	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R6029	NRSA63J-474X	MG RESISTOR	470k ,1/16W
R6030	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R6031	NRSA63J-152X	MG RESISTOR	1.5k ,1/16W
R6032	NRSA63J-473X	MG RESISTOR	47k ,1/16W
R6034	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R6035	NRVA63D-243X	CMF RESISTOR	24k ,1/16W
R6036	NRVA63D-332X	CMF RESISTOR	33k ,1/16W
R6037	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R6038	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R6039	NRVA63D-473X	CMF RESISTOR	47k ,1/16W

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R6040	NRVA63D-273X	CMF RESISTOR	27k ,1/16W
R6041	NRSA63J-223X	MG RESISTOR	22k ,1/16W
R6042	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R6043	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R6047	NRSA63J-682X	MG RESISTOR	6.8k ,1/16W
R6048	NRVA63D-393X	CMF RESISTOR	39k ,1/16W
R6049	NRVA63D-332X	CMF RESISTOR	3.3k ,1/16W
R6050	NRSA63J-222X	MG RESISTOR	2.2k ,1/16W
R6052	NRSA63J-563X	MG RESISTOR	56k ,1/16W
R6053	NRSA63J-223X	MG RESISTOR	22k ,1/16W
R6054	NRSA02J-153X	MG RESISTOR	15k ,1/10W
R6055	NRSA63J-124X	MG RESISTOR	120k ,1/16W
R6056	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R6201	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R6202	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R6203	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R6204	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R6205	NRSA63J-100X	MG RESISTOR	10 ,1/16W
R6206	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R7102	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R7103	NRSA63J-563X	MG RESISTOR	56k ,1/16W
R7106	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R7107	NRSA63J-101X	MG RESISTOR	100 ,1/16W
R7108	NRVA63D-182X	CMF RESISTOR	1.8k ,1/16W
R7109	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R7111	NRVA63D-332X	CMF RESISTOR	3.3k ,1/16W
R7112	NRVA63D-561X	CMF RESISTOR	560 ,1/16W
R7113	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R7115	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
RA101	NRZ0038-222X	NETWORK RESISTOR	2.2k
RA102	NRZ0038-222X	NETWORK RESISTOR	2.2k
RA103	NRZ0038-222X	NETWORK RESISTOR	2.2k
RA105	NRZ0038-222X	NETWORK RESISTOR	2.2k
RA107	NRZ0038-222X	NETWORK RESISTOR	2.2k
RA108	NRZ0012-331X	NETWORK RESISTOR	330
C101	NEA71CM-226X	E CAPACITOR	22µF,16V
C102	NBE41AM-106X	T CAPACITOR	10µF,10V
C103	NCB31CK-104X	CAPACITOR	0.1µF,16V
C104	NBE21AM-225X	T CAPACITOR	2.2µF,10V
C105	NEA70JM-226X	E CAPACITOR	22µF,6.3V
C106	NEA70JM-226X	E CAPACITOR	22µF,6.3V
C107	NCB31EK-103X	CAPACITOR	0.01µF,25V
C108	NCB31EK-103X	CAPACITOR	0.01µF,25V
C109	NCB21CK-474X	CAPACITOR	0.47µF,16V
C110	NCB31CK-333X	CAPACITOR	0.033µF,16V
C111	NDC31HJ-9R0X	CAPACITOR	9pF,50V
C112	NDC31HJ-100X	CAPACITOR	10pF,50V
C113	NDC31HJ-100X	CAPACITOR	10pF,50V
C114	NCB31CK-333X	CAPACITOR	0.033µF,16V
C116	NCB31EK-103X	CAPACITOR	0.01µF,25V
C117	NCB31EK-103X	CAPACITOR	0.01µF,25V
C118	NCB31EK-103X	CAPACITOR	0.01µF,25V
C119	NBE41AM-106X	T CAPACITOR	10µF,10V
C120	NDC31HJ-101X	CAPACITOR	100pF,50V
C122	NCB31EK-103X	CAPACITOR	0.01µF,25V
C123	NCB31EK-103X	CAPACITOR	0.01µF,25V
C124	NCB31EK-103X	CAPACITOR	0.01µF,25V
C125	NCB31EK-103X	CAPACITOR	0.01µF,25V
C126	NDC31HJ-101X	CAPACITOR	100pF,50V
C128	NDC31HJ-151X	CAPACITOR	150pF,50V
C130	NCB31EK-103X	CAPACITOR	0.01µF,25V

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C131	NCB31EK-103X	CAPACITOR	0.01µF,25V
C133	NCB31CK-104X	CAPACITOR	0.1µF,16V
C135	NCB31CK-104X	CAPACITOR	0.1µF,16V
C136	NCF31AZ-105X	CAPACITOR	1µF,10V
C137	NCF31AZ-105X	CAPACITOR	1µF,10V
C138	NCB31CK-104X	CAPACITOR	0.1µF,16V
C141	NCB31EK-103X	CAPACITOR	0.01µF,25V
C142	NCB31EK-103X	CAPACITOR	0.01µF,25V
C143	NCB31EK-103X	CAPACITOR	0.01µF,25V
C144	NCB31EK-103X	CAPACITOR	0.01µF,25V
C146	NCB31EK-103X	CAPACITOR	0.01µF,25V
C147	NCB31EK-103X	CAPACITOR	0.01µF,25V
C1201	NBE41AM-106X	T CAPACITOR	10µF,10V
C1202	NBE41AM-106X	T CAPACITOR	10µF,10V
C1204	NCB31HK-102X	CAPACITOR	0.001µF,50V
C1205	NCF21CZ-105X	CAPACITOR	1µF,16V
C1206	NBE41AM-106X	T CAPACITOR	10µF,10V
C1601	NCB31EK-103X	CAPACITOR	0.01µF,25V
C1602	NBE41AM-106X	T CAPACITOR	10µF,10V
C1603	NBE41AM-226X	T CAPACITOR	22µF,10V
C1604	NCB31HK-681X	CAPACITOR	680pF,50V
C1605	NCB21CK-474X	CAPACITOR	0.47µF,16V
C1606	NCB31HK-152X	CAPACITOR	0.0015µF,50V
C1607	NCB31CK-223X	CAPACITOR	0.022µF,16V
C1608	NCB31CK-223X	CAPACITOR	0.022µF,16V
C1609	NCB31CK-223X	CAPACITOR	0.022µF,16V
C1610	NCF21EZ-224X	CAPACITOR	0.22µF,25V
C1611	NCF21EZ-224X	CAPACITOR	0.22µF,25V
C1612	NCF21EZ-224X	CAPACITOR	0.22µF,25V
C1613	NCF21EZ-224X	CAPACITOR	0.22µF,25V
C1614	NBP41CM-106X	T CAPACITOR	10µF,16V
C1615	NCB31CK-104X	CAPACITOR	0.1µF,16V
C1616	NCB31CK-104X	CAPACITOR	0.1µF,16V
C1617	NCB31CK-104X	CAPACITOR	0.1µF,16V
C1618	NCB31CK-223X	CAPACITOR	0.022µF,16V
C1619	NCB31CK-223X	CAPACITOR	0.022µF,16V
C1620	NCB31CK-223X	CAPACITOR	0.022µF,16V
C1621	NCB31CK-104X	CAPACITOR	0.1µF,16V
C1622	NCB31CK-104X	CAPACITOR	0.1µF,16V
C1623	NCB31CK-104X	CAPACITOR	0.1µF,16V
C1624	NCB31HK-472X	CAPACITOR	0.0047µF,50V
C1625	NCB31CK-104X	CAPACITOR	0.1µF,16V
C1626	NCB31CK-104X	CAPACITOR	0.1µF,16V
C1627	NCB31CK-473X	CAPACITOR	0.047µF,16V
C1628	NCF21CZ-334X	CAPACITOR	0.33µF,16V
C1633	NCF21CZ-105X	CAPACITOR	1µF,16V
C1801	NEA70JM-226X	E CAPACITOR	22µF,6.3V
C1803	NBE20JM-225X	T CAPACITOR	2.2µF,6.3V
C1804	NCB31CK-104X	CAPACITOR	0.1µF,16V
C1805	NCB31EK-153X	CAPACITOR	0.015µF,25V
C1806	NCB31EK-153X	CAPACITOR	0.015µF,25V
C1808	NBE20JM-106X	T CAPACITOR	10µF,6.3V
C2001	NBE41AM-226X	T CAPACITOR	22µF,10V
C2002	NCB31HK-682X	CAPACITOR	0.0068µF,50V
C2003	NDC31HJ-471X	CAPACITOR	470pF,50V
C2004	NFV41HJ-273X	MPPS CAPACITOR	0.027µF,50V
C2005	NDC31HJ-331X	CAPACITOR	330pF,50V
C2008	NEZ0012-476X	E CAPACITOR	47µF,5.5V
C2009	NEZ0012-476X	E CAPACITOR	47µF,5.5V
C2021	NCB21EK-223X	CAPACITOR	0.022µF,25V
C2022	NBE20JM-156X	T CAPACITOR	15µF,6.3V

⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C2024	NCB31HK-222X	CAPACITOR	0.0022µF,50V
C2025	NBP21CM-105X	T CAPACITOR	1µF,16V
C2026	NCB31HK-122X	CAPACITOR	0.0012µF,50V
C2027	NBP21EM-474X	T CAPACITOR	0.47µF,25V
C2028	NCF21CZ-105X	CAPACITOR	1µF,16V
C2029	NEA70GM-476X	E CAPACITOR	47µF,4.0V
C2030	NEA70JM-226X	E CAPACITOR	22µF,6.3V
C2031	NCB31HK-102X	CAPACITOR	0.001µF,50V
C2052	NCB31EK-682X	CAPACITOR	0.0068µF,25V
C2061	NCB21EK-104X	CAPACITOR	0.1µF,25V
C2062	NCF21CZ-105X	CAPACITOR	1µF,16V
C2063	NCF21CZ-105X	CAPACITOR	1µF,16V
C2071	NEZ0012-476X	E CAPACITOR	47µF,5.5V
C2072	NBP21CM-105X	T CAPACITOR	1µF,16V
C2073	NDC31HJ-331X	CAPACITOR	330pF,50V
C2074	NCB31EK-223X	CAPACITOR	0.022µF,25V
C2075	NCB31HK-102X	CAPACITOR	0.001µF,50V
C2076	NBP21EM-474X	T CAPACITOR	0.47µF,25V
C2077	NDC31HJ-121X	CAPACITOR	120pF,50V
C2078	NBE20JM-475X	T CAPACITOR	4.7µF,6.3V
C2079	NCB21EK-104X	CAPACITOR	0.1µF,25V
C2080	NCB31HK-472X	CAPACITOR	0.0047µF,50V
C2081	NDC31HJ-121X	CAPACITOR	120pF,50V
C3001	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3002	NBE20JM-106X	T CAPACITOR	10µF,6.3V
C3003	NDC31HJ-151X	CAPACITOR	150pF,50V
C3004	NCB31CK-104X	CAPACITOR	0.1µF,16V
C3005	NDC31HJ-390X	CAPACITOR	39pF,50V
C3006	NCB31CK-104X	CAPACITOR	0.1µF,16V
C3008	NCB31CK-104X	CAPACITOR	0.1µF,16V
C3009	NBE20JM-106X	T CAPACITOR	10µF,6.3V
C3010	NCB31CK-104X	CAPACITOR	0.1µF,16V
C3011	NCB31CK-104X	CAPACITOR	0.1µF,16V
C3012	NBE20JM-335X	T CAPACITOR	3.3µF,6.3V
C3013	NBE20JM-106X	T CAPACITOR	10µF,6.3V
C3014	NBE20JM-225X	T CAPACITOR	2.2µF,6.3V
C3015	NCB21AK-105X	CAPACITOR	1µF,10V
C3016	NDC31HJ-221X	CAPACITOR	220pF,50V
C3017	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3018	NBE20JM-106X	T CAPACITOR	10µF,6.3V
C3019	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3021	NCB31CK-104X	CAPACITOR	0.1µF,16V
C3022	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3023	NCB31CK-104X	CAPACITOR	0.1µF,16V
C3024	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3025	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3026	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3027	NBE20JM-106X	T CAPACITOR	10µF,6.3V
C3029	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
C3030	NBE20JM-475X	T CAPACITOR	4.7µF,6.3V
C3031	NCB31CK-683X	CAPACITOR	0.068µF,16V
C3032	NCB21CK-474X	CAPACITOR	0.47µF,16V
C3033	NCB31CK-223X	CAPACITOR	0.022µF,16V
C3034	NBE20JM-225X	T CAPACITOR	2.2µF,6.3V
C3035	NCB31HK-472X	CAPACITOR	0.0047µF,50V
C3036	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3037	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3038	NCB31CK-333X	CAPACITOR	0.033µF,16V
C3039	NBE20JM-335X	T CAPACITOR	3.3µF,6.3V
C3040	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3041	NBE20JM-106X	T CAPACITOR	10µF,6.3V

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C3042	NDC31HJ-6R0X	CAPACITOR	6pF,50V
C3045	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
C3101	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3102	NBE20JM-106X	T CAPACITOR	10µF,6.3V
C3103	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3104	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3105	NCB21AK-105X	CAPACITOR	1µF,10V
C3106	NCB21AK-105X	CAPACITOR	1µF,10V
C3109	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3110	NBE20JM-106X	T CAPACITOR	10µF,6.3V
C3111	NEA50GM-337X	E CAPACITOR	330µF,4.0V
C3113	NCB21AK-105X	CAPACITOR	1µF,10V
C3501	NBE20JM-106X	T CAPACITOR	10µF,6.3V
C3502	NCF21CZ-105X	CAPACITOR	1µF,16V
C3503	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3504	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3505	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3506	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3507	NCF21CZ-105X	CAPACITOR	1µF,16V
C3508	NCB31EK-153X	CAPACITOR	0.015µF,25V
C3509	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3510	NCB31CK-104X	CAPACITOR	0.1µF,16V
C3513	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3514	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3515	NCB31CK-104X	CAPACITOR	0.1µF,16V
C3517	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3518	NCB31CK-104X	CAPACITOR	0.1µF,16V
C3520	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3522	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3523	NCB31CK-104X	CAPACITOR	0.1µF,16V
C3525	NCB31CK-473X	CAPACITOR	0.047µF,16V
C3526	NDC31HJ-121X	CAPACITOR	120pF,50V
C3527	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3901	NDC31HJ-151X	CAPACITOR	150pF,50V
C3903	NCB31EK-103X	CAPACITOR	0.01µF,25V
C3904	NDC31HJ-101X	CAPACITOR	100pF,50V
C3905	NDC31HJ-101X	CAPACITOR	100pF,50V
C4001	NCF31EZ-104X	CAPACITOR	0.1µF,25V
C4002	NCF31EZ-104X	CAPACITOR	0.1µF,25V
C4003	NCF31EZ-104X	CAPACITOR	0.1µF,25V
C4004	NCF31EZ-104X	CAPACITOR	0.1µF,25V
C4005	NCF31EZ-104X	CAPACITOR	0.1µF,25V
C4006	NCF31EZ-104X	CAPACITOR	0.1µF,25V
C4007	NCF31EZ-104X	CAPACITOR	0.1µF,25V
C4008	NBE40JM-226X	T CAPACITOR	22µF,6.3V
C4009	NCF31EZ-104X	CAPACITOR	0.1µF,25V
C4010	NBE20JM-106X	T CAPACITOR	10µF,6.3V
C4011	NCF31EZ-104X	CAPACITOR	0.1µF,25V
C4012	NCF31EZ-104X	CAPACITOR	0.1µF,25V
C4013	NCB21AK-105X	CAPACITOR	1µF,10V
C4014	NCF31EZ-104X	CAPACITOR	0.1µF,25V
C4015	NBE20GM-336X	T CAPACITOR	33µF,4.0V
C4016	NCF31EZ-104X	CAPACITOR	0.1µF,25V
C4017	NCF31EZ-104X	CAPACITOR	0.1µF,25V
C4018	NCF31EZ-104X	CAPACITOR	0.1µF,25V
C4021	NCF31EZ-104X	CAPACITOR	0.1µF,25V
C4022	NCB31CK-104X	CAPACITOR	0.1µF,16V
C4023	NCF31EZ-104X	CAPACITOR	0.1µF,25V
C4025	NCF31EZ-104X	CAPACITOR	0.1µF,25V
C4026	NCF31EZ-104X	CAPACITOR	0.1µF,25V
C4027	NCB21AK-105X	CAPACITOR	1µF,10V

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C4032	NBE41AM-106X	T CAPACITOR	10µF,10V
	C4033	NCB21AK-105X	CAPACITOR	1µF,10V
	C4034	NCF31EZ-104X	CAPACITOR	0.1µF,25V
	C4037	NCF31EZ-104X	CAPACITOR	0.1µF,25V
	C4038	NCF31EZ-104X	CAPACITOR	0.1µF,25V
	C4040	NDC31HJ-180X	CAPACITOR	18pF,50V
	C4042	NCF31EZ-104X	CAPACITOR	0.1µF,25V
	C4201	NBE20JM-225X	T CAPACITOR	2.2µF,6.3V
	C4202	NCF31CZ-104X	CAPACITOR	0.1µF,16V
	C4203	NCB31CK-104X	CAPACITOR	0.1µF,16V
	C4205	NCB31EK-103X	CAPACITOR	0.01µF,25V
	C4207	NCB31CK-104X	CAPACITOR	0.1µF,16V
	C4208	NCB31CK-104X	CAPACITOR	0.1µF,16V
	C4210	NCF21CZ-105X	CAPACITOR	1µF,16V
	C4211	NCF21CZ-105X	CAPACITOR	1µF,16V
	C4213	NCB31EK-103X	CAPACITOR	0.01µF,25V
	C4301	NCB31EK-103X	CAPACITOR	0.01µF,25V
	C4501	NBE20JM-106X	T CAPACITOR	10µF,6.3V
	C4502	NCF31CZ-104X	CAPACITOR	0.1µF,16V
	C4503	NEA71CM-107X	E CAPACITOR	100µF,16V
	C4504	NCF31CZ-104X	CAPACITOR	0.1µF,16V
	C4505	NDC31HJ-330X	CAPACITOR	33pF,50V
	C4506	NCB31HK-102X	CAPACITOR	0.001µF,50V
	C4507	NCB31HK-102X	CAPACITOR	0.001µF,50V
	C4508	NCB31HK-102X	CAPACITOR	0.001µF,50V
	C4509	NCB31HK-102X	CAPACITOR	0.001µF,50V
	C4511	NCB31CK-104X	CAPACITOR	0.1µF,16V
	C4512	NBE20JM-106X	T CAPACITOR	10µF,6.3V
	C5201	NCF31EZ-104X	CAPACITOR	0.1µF,25V
	C5203	NCF31CZ-104X	CAPACITOR	0.1µF,16V
	C5204	NCF31EZ-104X	CAPACITOR	0.1µF,25V
	C5205	NCF31CZ-104X	CAPACITOR	0.1µF,16V
	C5206	NCF31CZ-104X	CAPACITOR	0.1µF,16V
	C5207	NBP41VM-105X	T CAPACITOR	1µF,35V
	C5210	NCB21EK-104X	CAPACITOR	0.1µF,25V
	C5212	NCB31CK-104X	CAPACITOR	0.1µF,16V
	C5214	NBP21CM-685X	T CAPACITOR	6.8µF,16V
	C5215	NCF31CZ-104X	CAPACITOR	0.1µF,16V
	C5216	NCF31EZ-104X	CAPACITOR	0.1µF,25V
	C5217	NBP21EM-155X	T CAPACITOR	1.5µF,25V
	C5218	NCB21AK-105X	CAPACITOR	1µF,10V
	C5219	NBE50GM-107X	T CAPACITOR	100µF,4.0V
	C5220	NBE50GM-107X	T CAPACITOR	100µF,4.0V
	C5221	NCF31CZ-104X	CAPACITOR	0.1µF,16V
	C5222	NCF31CZ-104X	CAPACITOR	0.1µF,16V
	C5223	NCF31CZ-104X	CAPACITOR	0.1µF,16V
	C5224	NCF31CZ-104X	CAPACITOR	0.1µF,16V
	C5225	NCF31CZ-104X	CAPACITOR	0.1µF,16V
	C5226	NBP21EM-105X	T CAPACITOR	1µF,25V
	C5227	NCB31CK-104X	CAPACITOR	0.1µF,16V
	C5228	NCB31CK-104X	CAPACITOR	0.1µF,16V
	C5229	NCB31CK-104X	CAPACITOR	0.1µF,16V
	C5230	NCB31CK-104X	CAPACITOR	0.1µF,16V
	C5231	NCF31CZ-104X	CAPACITOR	0.1µF,16V
	C5234	NCB21AK-105X	CAPACITOR	1µF,10V
	C5235	NCF31CZ-104X	CAPACITOR	0.1µF,16V
	C5237	NCF31CZ-104X	CAPACITOR	0.1µF,16V
	C5239	NCF31EZ-104X	CAPACITOR	0.1µF,25V
	C5240	NCF31CZ-104X	CAPACITOR	0.1µF,16V
	C5241	NCB31CK-104X	CAPACITOR	0.1µF,16V
	C6001	NCB11CK-105X	CAPACITOR	1µF,16V
	C6002	NCB11CK-105X	CAPACITOR	1µF,16V
	C6003	NCB31HK-561X	CAPACITOR	560pF,50V
	C6004	NCB31CK-104X	CAPACITOR	0.1µF,16V
	C6005	NCB31HK-102X	CAPACITOR	0.001µF,50V
	C6006	NCB31HK-102X	CAPACITOR	0.001µF,50V
	C6007	NCB31CK-104X	CAPACITOR	0.1µF,16V
	C6008	NCB31EK-103X	CAPACITOR	0.01µF,25V
	C6009	NCB21CK-224X	CAPACITOR	0.22µF,16V
	C6010	NDC31HJ-391X	CAPACITOR	390pF,50V
	C6011	NEA71CM-226X	E CAPACITOR	22µF,16V
	C6012	NCB31CK-104X	CAPACITOR	0.1µF,16V
	C6013	NCB31CK-104X	CAPACITOR	0.1µF,16V
	C6014	NCB31EK-103X	CAPACITOR	0.01µF,25V
	C6015	NCB31EK-223X	CAPACITOR	0.022µF,25V
	C6016	NCB31CK-104X	CAPACITOR	0.1µF,16V
	C6017	NCB31EK-103X	CAPACITOR	0.01µF,25V
	C6018	NCB31HK-102X	CAPACITOR	0.001µF,50V
	C6019	NCB31CK-104X	CAPACITOR	0.1µF,16V
	C6020	NCB31HK-561X	CAPACITOR	560pF,50V
	C6021	NCB31HK-102X	CAPACITOR	0.001µF,50V
	C6022	NCB31HK-472X	CAPACITOR	0.0047µF,50V
	C6023	NCB31HK-472X	CAPACITOR	0.0047µF,50V
	C6024	NCB31EK-103X	CAPACITOR	0.01µF,25V
	C6025	NCB31EK-223X	CAPACITOR	0.022µF,25V
	C6026	NCB11CK-105X	CAPACITOR	1µF,16V
	C6027	NCB11CK-225X	CAPACITOR	2.2µF,16V
	C6028	NDC31HJ-101X	CAPACITOR	100pF,50V
	C6029	NCB10JK-106X	CAPACITOR	10µF,6.3V
	C6030	NEA71CM-106X	E CAPACITOR	10µF,16V
	C6032	NCB11CK-105X	CAPACITOR	1µF,16V
	C6033	NCB11CK-105X	CAPACITOR	1µF,16V
	C6035	NCB11CK-105X	CAPACITOR	1µF,16V
	C6036	NCB10JK-106X	CAPACITOR	10µF,6.3V
	C6037	NDC31HJ-471X	CAPACITOR	470pF,50V
	C6039	NCB11CK-105X	CAPACITOR	1µF,16V
	C6040	NCB11CK-105X	CAPACITOR	1µF,16V
	C6041	NCB11CK-105X	CAPACITOR	1µF,16V
	C6042	NCB11CK-105X	CAPACITOR	1µF,16V
	C6043	NCB11CK-105X	CAPACITOR	1µF,16V
	C6044	NCB11CK-105X	CAPACITOR	1µF,16V
	C6047	NCB31HK-102X	CAPACITOR	0.001µF,50V
	C6048	NCB11CK-105X	CAPACITOR	1µF,16V
	C6049	NCB11CK-105X	CAPACITOR	1µF,16V
	C6050	NCB11CK-105X	CAPACITOR	1µF,16V
	C6051	NCB11CK-105X	CAPACITOR	1µF,16V
	C6052	NBP41DM-475X	T CAPACITOR	4.7µF,20V
	C6053	NCB11CK-105X	CAPACITOR	1µF,16V
	C6201	NEA71CM-106X	E CAPACITOR	10µF,16V
	C7101	NCF31CZ-104X	CAPACITOR	0.1µF,16V
	C7102	NCF31CZ-104X	CAPACITOR	0.1µF,16V
	C7103	NCB31HK-102X	CAPACITOR	0.001µF,50V
	C7105	NDC31HJ-270X	CAPACITOR	27pF,50V
	C7108	NBE40JM-226X	T CAPACITOR	22µF,6.3V
	C7112	NBE20JM-106X	T CAPACITOR	10µF,6.3V
	L101	NQL034K-330X	COIL	33µH
	L102	NQL184J-100X	COIL	10µH
	L501	NQR0129-002X	FERRITE BEAD	
	L2001	NQL164K-101X	COIL	100µH
	L2002	NQL164K-100X	COIL	10µH
⚠	L3001	NQL315K-220X	COIL	22µH
⚠	L3003	NQL315K-220X	COIL	22µH

⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
⚠	L3004	NQL315K-220X	COIL	22μH
	L3005	NQL184J-120X	COIL	12μH
⚠	L3101	NQL315K-220X	COIL	22μH
⚠	L3102	NQL315K-220X	COIL	22μH
	L3501	NQL315K-220X	COIL	22μH
	L3502	NQL184J-331X	COIL	330μH
	L3901	NQL315K-101X	COIL	100μH
	L3902	NQL085J-560X	COIL	56μH
	L3903	NQL085J-560X	COIL	56μH
	L3904	NQL085J-1R5X	COIL	1.5μH
	L4001	NQL164K-220X	COIL	22μH
	L4002	NQL164K-101X	COIL	100μH
	L4201	NQL315K-220X	COIL	22μH
	L4501	NQL315K-100X	COIL	10μH
	L4502	NQL164K-220X	COIL	22μH
	L4503	NQL315K-220X	COIL	22μH
	L5201	NQL164K-220X	COIL	22μH
	L5203	NQL164K-101X	COIL	100μH
	L5204	NQL164K-101X	COIL	100μH
	L6001	NQLZ010-100X	COIL	10μH
	L6002	NQLZ010-100X	COIL	10μH
	L6003	NQL17CM-390X	COIL	39μH
	L6004	NQLZ010-100X	COIL	10μH
	L6005	NQL17CM-680X	COIL	68μH
	L6006	NQL17CM-470X	COIL	47μH
	L6008	NQL03BK-220X	COIL	22μH
	L7101	NQL144K-100X	COIL	10μH
	L7103	NQL144K-100X	COIL	10μH
	X101	NAX0251-001X	CRYSTAL RESONATOR	
	X102	NAX0267-001X	CRYSTAL RESONATOR	
	X3001	QAX0517-001	CRYSTAL RESONATOR	
	X5201	NAX0148-001X	CXO	
	SW503	NSW0092-001X	SLIDE SWITCH	
	T2001	NQR0002-001X	BIAS COIL	
	T6001	NQS0029-001X	SW TRANSF	
	WR1	WJZ0011-001C	E-HARNESS ASSY	
	J502	YQ32092-3	BATT TERM UNIT	
	J503	PEMC1203	MINI JACK	
	J504	LY30862-002B	JACK UNIT	
	CN1	QGF0507F1-10X	FPC CONNECTOR	
	CN2	QGF0510F2-14X	FPC CONNECTOR	
	CN3	QGF0507F1-18X	FPC CONNECTOR	
	CN4	QGA1201F2-02X	CONNECTOR	
	CN5	QGF0507F1-11X	FPC CONNECTOR	
	CN7	QGF0507F2-11X	FPC CONNECTOR	
	CN8	QGA1201C2-02X	CONNECTOR	
	CN11	QGF0507F1-20X	FPC CONNECTOR	
	CN13	QGF0507F2-10X	FPC CONNECTOR	
	CN14	QGA1201C2-02X	CONNECTOR	
	CN15	QGF0510F2-22X	FPC CONNECTOR	
	CN18	QGF0510F2-14X	FPC CONNECTOR	
	CN22	QGF0505F2-14X	FPC CONNECTOR	
	CN25	QGB0801M1-30X	CONNECTOR	
	CN26	QGA1201C2-02X	CONNECTOR	
⚠	F6001	NMFZ006-2R0X-K	FUSE	T2.0A
⚠	F6002	NMFZ006-2R0X-K	FUSE	T2.0A
	F6003	NRSA02J-0R0X	MG RESISTOR	0 ,1/10W
	F6004	NRSA02J-0R0X	MG RESISTOR	0 ,1/10W
⚠	F7101	NMFZ006-R20X-K	FUSE	T0.2A
	SD1	LY41184-001A	SHIELD CASE(U)	
	SD2	LY41185-001A	SHIELD CASE(L)	
	SD3	LY41364-001A	SHIELD PLATE	

#	⚠	REF No.	PART No.	PART NAME, DESCRIPTION	

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CCD BOARD ASSEMBLY <02>

REF No.	PART No.	PART NAME, DESCRIPTION	
PW	YB20846A-01-SS	CCD BOARD ASSY	
Q5301	2SC3931/CD/-X	TRANSISTOR	
R5301	NRSA02J-105X	MG RESISTOR	1M ,1/10W
R5302	NRSA02J-562X	MG RESISTOR	5.6k ,1/10W
R5303	NRSA02J-0R0X	MG RESISTOR	0 ,1/10W
R5304	NRSA02J-105X	MG RESISTOR	1M ,1/10W
C5301	NCF21EZ-104X	CAPACITOR	0.1μF,25V
C5302	NBP21EM-155X	T CAPACITOR	1.5μF,25V
C5303	NCB21HK-102X	CAPACITOR	0.001μF,50V
C5304	NCF21EZ-104X	CAPACITOR	0.1μF,25V
C5306	NDC21HJ-220X	CAPACITOR	22pF,50V

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BL BOARD ASSEMBLY <06>

REF No.	PART No.	PART NAME, DESCRIPTION	
PW2	YB20838B2-01	BL BOARD ASSY	
Q7301	2SK2742	POWER MOS FET	
R7301	NRSA63J-104X	MG RESISTOR	100k ,1/16W
C7301	NBP71CM-336X	T CAPACITOR	33μF,16V
C7302	NCF31CZ-104X	CAPACITOR	0.1μF,16V
L7301	NQL144K-100X	COIL	10μH
BL7301	NLL0006-001	LAMP	
T7301	NQH0006-001X	FB TRANSF	
CN7301	QGF0512C1-06X	FPC CONNECTOR	

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VF BOARD ASSEMBLY <10>

REF No.	PART No.	PART NAME, DESCRIPTION	
PW1	YB20838B1-01	VF BOARD ASSY	
IC7201	CXA2503AR	IC	
Q7201	2SC4655/BC/-X	TRANSISTOR	
D7201	MA365	VARI CAP DIODE	
R7201	NRSA63J-222X	MG RESISTOR	2.2k ,1/16W
R7202	NRSA63J-222X	MG RESISTOR	2.2k ,1/16W
R7203	NRSA63J-272X	MG RESISTOR	2.7k ,1/16W
R7204	NRSA63J-561X	MG RESISTOR	560 ,1/16W
R7205	NRSA63J-104X	MG RESISTOR	100k ,1/16W
R7206	NRSA63J-274X	MG RESISTOR	270k ,1/16W
R7207	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R7208	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R7209	NRSA63J-333X	MG RESISTOR	33k ,1/16W
R7210	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R7211	NRVA63D-122X	CMF RESISTOR	1.2k ,1/16W
R7212	NRVA63D-182X	CMF RESISTOR	1.8k ,1/16W
R7213	NRVA63D-153X	CMF RESISTOR	15k ,1/16W
R7214	NRVA63D-272X	CMF RESISTOR	2.7k ,1/16W
R7215	NRVA63D-153X	CMF RESISTOR	15k ,1/16W
R7216	NRVA63D-153X	CMF RESISTOR	15k ,1/16W
R7218	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
R7220	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R7221	NRVA63D-563X	CMF RESISTOR	56k ,1/16W
R7222	NRVA63D-393X	CMF RESISTOR	39k ,1/16W
R7223	NRSA63J-103X	MG RESISTOR	10k ,1/16W
R7224	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R7225	NRSA63J-102X	MG RESISTOR	1k ,1/16W
R7226	NRSA63J-563X	MG RESISTOR	56k ,1/16W
R7227	NRSA63J-223X	MG RESISTOR	22k ,1/16W
R7229	NRSA63J-101X	MG RESISTOR	100 ,1/16W
R7230	NRSA63J-101X	MG RESISTOR	100 ,1/16W
R7231	NRSA63J-0R0X	MG RESISTOR	0 ,1/16W
C7201	NCB31EK-103X	CAPACITOR	0.01μF,25V
C7202	NCB21EK-333X	CAPACITOR	0.033μF,25V
C7203	NCB11CK-105X	CAPACITOR	1μF,16V
C7204	NCF11CZ-225X	CAPACITOR	2.2μF,16V
C7205	NCB31HK-332X	CAPACITOR	0.0033μF,50V
C7206	NCB31EK-103X	CAPACITOR	0.01μF,25V
C7207	NDC31HJ-221X	CAPACITOR	220pF,50V
C7208	NDC31HJ-560X	CAPACITOR	56pF,50V
C7209	NCF21CZ-105X	CAPACITOR	1μF,16V
C7210	NCB11CK-105X	CAPACITOR	1μF,16V
C7211	NCB31EK-103X	CAPACITOR	0.01μF,25V
C7212	NCF21CZ-105X	CAPACITOR	1μF,16V
C7213	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C7214	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C7215	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C7216	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C7217	NCB31EK-103X	CAPACITOR	0.01μF,25V
C7218	NBP41CM-106X	T CAPACITOR	10μF,16V
C7219	NCB31EK-103X	CAPACITOR	0.01μF,25V
C7220	NBE20JM-106X	T CAPACITOR	10μF,6.3V
C7221	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C7222	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C7223	NCB31EK-103X	CAPACITOR	0.01μF,25V
C7224	NCB31CK-333X	CAPACITOR	0.033μF,16V
C7225	NCF31CZ-104X	CAPACITOR	0.1μF,16V
C7226	NRSA63J-102X	MG RESISTOR	1k ,1/16W
C7227	NCB11CK-105X	CAPACITOR	1μF,16V
C7228	NCB31EK-103X	CAPACITOR	0.01μF,25V
C7229	NCF21CZ-105X	CAPACITOR	1μF,16V
C7230	NBE20JM-106X	T CAPACITOR	10μF,6.3V
L7201	NQL144K-100X	COIL	10μH
L7202	NQL144K-100X	COIL	10μH
L7203	NQL144K-100X	COIL	10μH
L7204	NQL184J-120X	COIL	12μH
L7205	NQL144K-100X	COIL	10μH
X7201	NAX0084-001X	CRYSTAL RESONATOR	
CN7201	QGF0503C1-18X	FFC/FPC CONNECTOR	
CN7202	QGF0503C1-16X	FFC/FPC CONNECTOR	

✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻

OPERATION (DECK) UNIT <20>

PW	LY10120-006A	OPERATION (DECK) UNIT

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION

✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻✻

ZOOM UNIT <21>

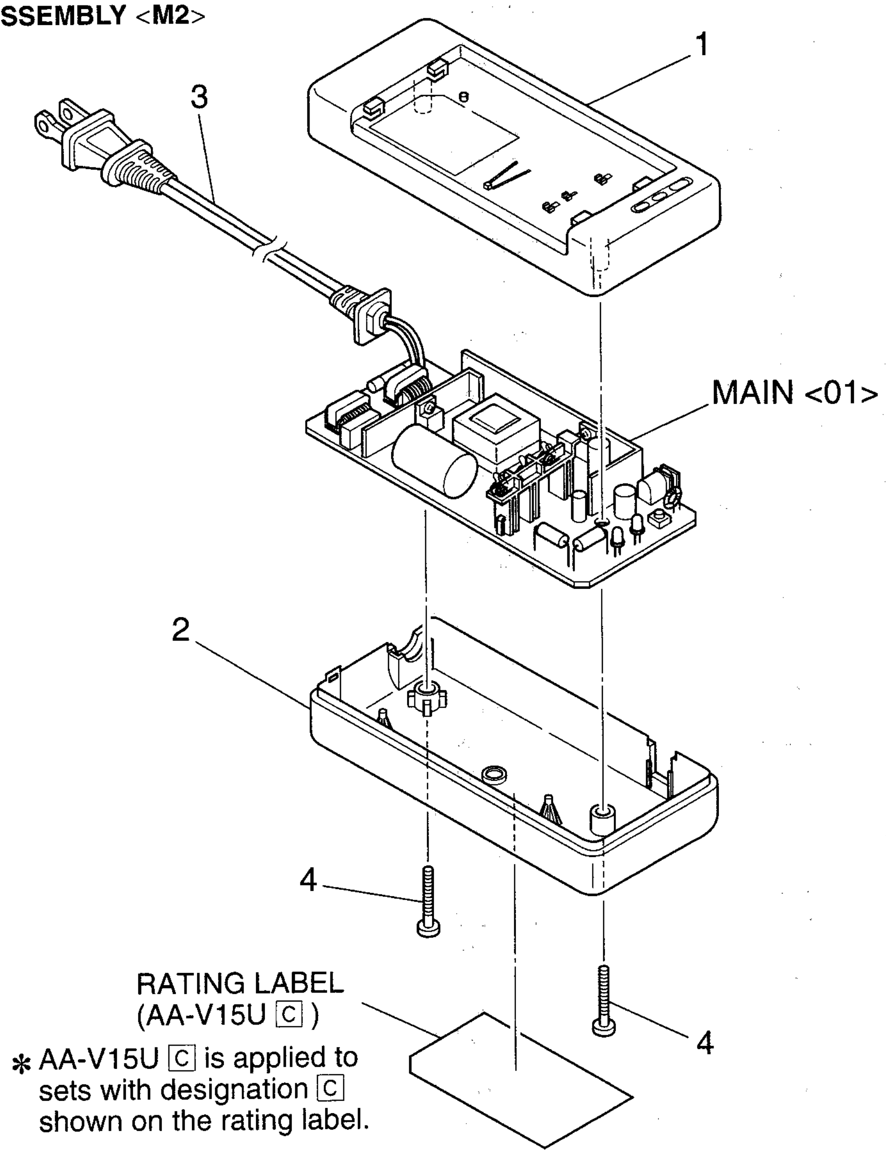
PW	LY10121-001C	ZOOM UNIT

SECTION 6
AC POWER ADAPTER (AA-V15U 🄲)

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

6.1 CABINET ASSEMBLY <M2>



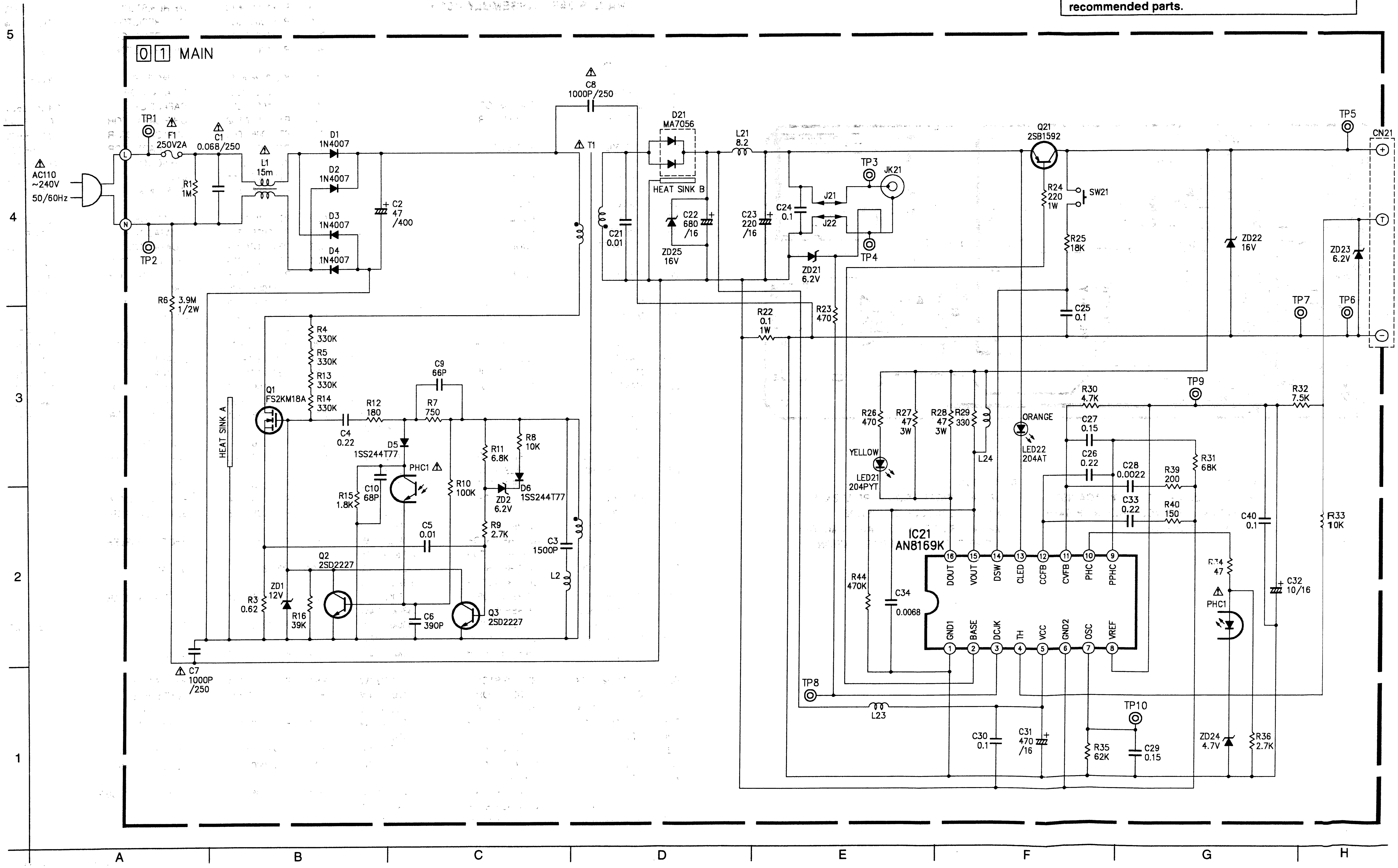
* AA-V15U 🄲 is applied to sets with designation 🄲 shown on the rating label.

#REF No.	PART No.	PART NAME, DESCRIPTION
*****************************		
CABINET ASSEMBLY <M2>		
1	PTY10067-002	UPPER CASE ASSY
2	PTY10067-012	LOWER CASE
⚠ 3	YQ10531-057	POWER CORD
4	YQ10531-011	SCREW , X2

6.2 SCHEMATIC DIAGRAM

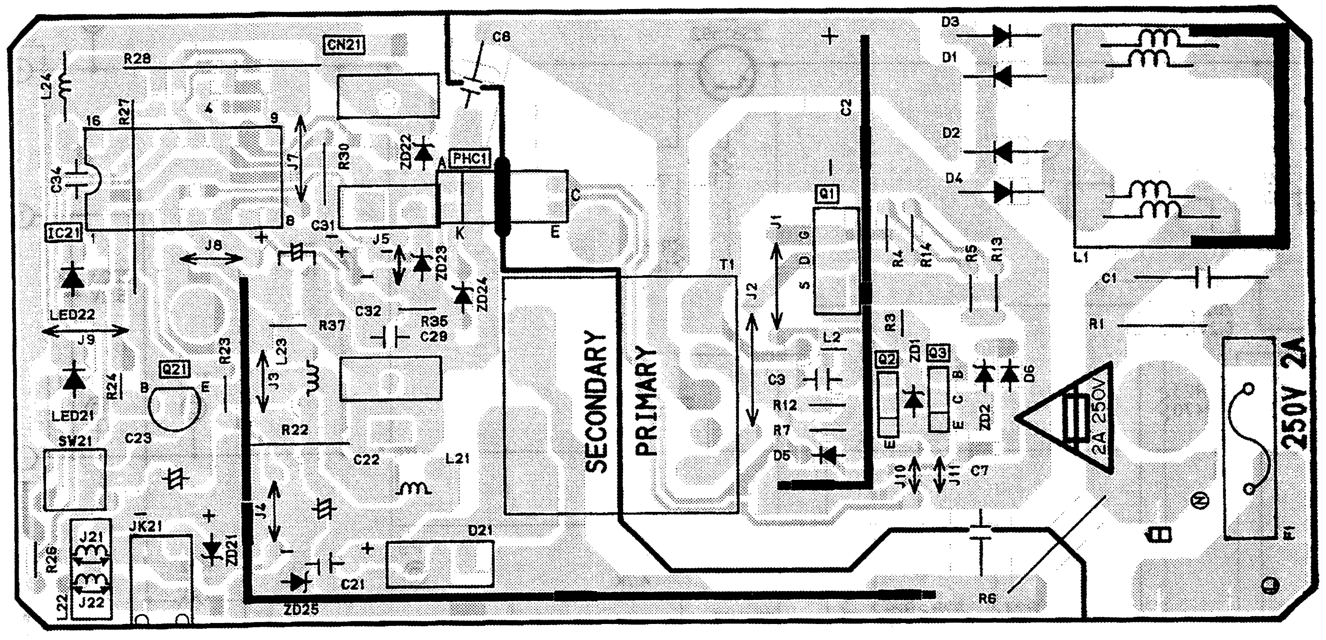
NOTE: When ordering parts, be sure to order according to the Part Number indicated in the Parts List.

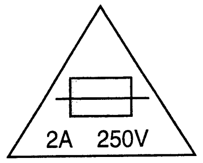
Safety precautions
The components identified by the symbol ⚠ are critical for safety. For continued safety, replace safety critical components only with manufacturer's recommended parts.



01 MAIN
AC110 ~240V 50/60Hz
TP1
F1 250V2A
C1 0.068/250
R1 1M
L1 15m
TP2
D1 1N4007
D2 1N4007
D3 1N4007
D4 1N4007
C2 47 /400
C8 1000P/250
T1
C21 0.01
D21 MA7056
HEAT SINK B
C22 680 /16
ZD25 16V
L21 8.2
C23 220 /16
C24 0.1
J21
J22
TP3
JK21
TP4
ZD21 6.2V
Q21 2SB1592
R24 220 1W
SW21
R25 18K
C25 0.1
ZD22 16V
ZD23 6.2V
TP5
TP6
TP7
CN21
R6 3.9M 1/2W
R4 330K
R5 330K
R13 330K
R14 330K
Q1 FS2KM18A
HEAT SINK A
C9 66P
R12 180
R7 750
C4 0.22
D5 1SS244T77
PHC1
R8 10K
R11 6.8K
R15 1.8K
C10 68P
R10 100K
ZD2 6.2V
D6 1SS244T77
R9 2.7K
C5 0.01
C3 1500P
L2
Q2 2SD2227
Q3 2SD2227
ZD1 12V
R3 0.62
R16 39K
C6 390P
C7 1000P /250
R22 0.1 1W
R23 470
R26 470
R27 47 3W
R28 47 3W
R29 330
L24
YELLOW
LED21 204PYT
ORANGE
LED22 204AT
R30 4.7K
C27 0.15
C26 0.22
C28 0.0022
R39 200
C33 0.22
R40 150
R31 68K
TP9
R32 7.5K
C40 0.1
R33 10K
IC21 AN8169K
16 DOUT
15 VOUT
14 DSW
13 CLED
12 CCFB
11 CVFB
10 PHC
9 PPHC
1 GND1
2 BASE
3 DCJK
4 TH
5 VCC
6 GND2
7 OSC
8 VREF
R44 470K
C34 0.0068
R34 47
PHC1
C32 10/16
TP8
L23
TP10
C30 0.1
C31 470 /16
R35 62K
C29 0.15
ZD24 4.7V
R36 2.7K
1
2
3
4
5
A
B
C
D
E
F
G
H

6.3 CIRCUIT BOARD





CAUTION:
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH SAME TYPE AND RATED FUSE.

ATTENTION:
POUR UNE PROTECTION PERMANENTE CONTRE LES RISQUE D'INCENDE, REMPLACER LE FUSIBLE PAR UN AUTRE DE MEME TYPE ET DE MEME TENSION.

6.4 ELECTRICAL PARTS LIST

#REF No.	PART No.	PART NAME, DESCRIPTION	
********************************			

MAIN BOARD ASSEMBLY <01>

#REF No.	PART No.	PART NAME, DESCRIPTION	
⚠ PW1	PTY10067-503	MAIN BOARD ASSY	
IC21	AN8169K	IC	
Q1	FS2KM18A	FET	
Q2	2SD2227	TRANSISTOR	
Q3	2SD2227	TRANSISTOR	
Q21	2SB1592	TRANSISTOR	
D1	1N4007	DIODE	
D2	1N4007	DIODE	
D3	1N4007	DIODE	
D4	1N4007	DIODE	
D5	1SS244T77	DIODE	
D6	1SS244T77	DIODE	
D21	MA7D56	DIODE	
ZD1	MTZ12	ZENER DIODE	
ZD2	MTZ6R2	ZENER DIODE	
ZD21	MA4062	ZENER DIODE	
ZD22	MA4160	ZENER DIODE	
ZD23	MA4062	ZENER DIODE	
ZD24	MA4047NM	ZENER DIODE	
LED21	YQ10531-543	LED	YELLOW
LED22	YQ10531-541	LED	ORANGE
R1	QRN141J-105	CF RESISTOR	1MΩ,1/4W
R3	PTY10067-601	MF RESISTOR	0.62Ω,1W
R4	PTY10067-602	CF RESISTOR	330kΩ,1/4W
R5	PTY10067-602	CF RESISTOR	330kΩ,1/4W
R6	PTY10067-603	RESISTOR	3.9MΩ,1/2W
R7	PTY10067-619	CF RESISTOR	750Ω,1/4W
R8	PTY10067-604	CHIP RESISTOR	10kΩ,1/10W
R9	PTY10067-605	CHIP RESISTOR	2.7kΩ,1/10W
R10	PTY10067-606	CHIP RESISTOR	100kΩ,1/10W
R11	PTY10067-607	CHIP RESISTOR	6.8kΩ,1/10W
R12	PTY10067-608	CF RESISTOR	180Ω,1/4W
R13	PTY10067-602	CF RESISTOR	330kΩ,1/4W
R14	PTY10067-602	CF RESISTOR	330kΩ,1/4W
R15	PTY10067-609	CHIP RESISTOR	1.8kΩ,1/10W
R16	PTY10067-610	CHIP RESISTOR	39kΩ,1/10W
R22	QRZ0192-R10X	MF RESISTOR	0.1Ω,1W
R23	QRZ0125-471	CF RESISTOR	470Ω,1/4W
R24	QRL01DJ-221X	MF RESISTOR	200Ω,1W
R25	PTY10067-611	CHIP RESISTOR	18kΩ,1/10W
R26	QRZ0125-471	CF RESISTOR	470Ω,1/4W
R27	QRL037J-470	MF RESISTOR	47Ω,3W
R28	QRL037J-470	MF RESISTOR	47Ω,3W
R29	PTY10067-612	CHIP RESISTOR	330Ω,1/10W
R30	QRZ0125-472	CF RESISTOR	4.7kΩ,1/4W
R31	PTY10067-613	CHIP RESISTOR	68kΩ,1/10W
R32	PTY10067-614	CHIP RESISTOR	7.5kΩ,1/10W

#REF No.	PART No.	PART NAME, DESCRIPTION	
R33	PTY10067-604	CHIP RESISTOR	10kΩ,1/10W
R34	PTY10067-615	CHIP RESISTOR	47Ω,1/10W
R35	PTY10067-616	MF RESISTOR	62kΩ,1/4W
R36	PTY10067-605	CHIP RESISTOR	2.7kΩ,1/10W
R39	PTY10067-617	CHIP RESISTOR	200Ω,1/10W
R40	PTY10067-618	CHIP RESISTOR	150Ω,1/10W
⚠ C1	YQ10626-401	CAPACITOR	0.068uF,250V
C2	YQ10626-402	E CAPACITOR	47uF,400V
C3	PTY10067-651	CAPACITOR	1500pF,250V
C4	PTY10067-652	CHIP CAPACITOR	0.22uF,16V
C5	PTY10067-653	CHIP CAPACITOR	0.01uF,50V
C6	PTY10067-654	CHIP CAPACITOR	390pF,50V
⚠ C7	YQ10531-514	CAPACITOR	1000pF,250V
⚠ C8	PTY10067-655	CAPACITOR	1000pF,250V
C9	PTY10067-656	CHIP CAPACITOR	68pF,50V
C21	PTY10067-657	CAPACITOR	0.01uF,250V
C22	PTY20080-522	E CAPACITOR	680uF,16V
C23	QETA1CM-227	E CAPACITOR	220uF,16V
C24	PTY10067-658	CHIP CAPACITOR	0.1uF,25V
C25	PTY10067-658	CHIP CAPACITOR	0.1uF,25V
C26	PTY10067-652	CHIP CAPACITOR	0.22uF,16V
C27	PTY10067-659	CHIP CAPACITOR	0.15uF,25V
C28	QFLA1HJ-222	CAPACITOR	0.0022uF,50V
C29	PTY10067-660	CAPACITOR	0.15uF,50V
C30	PTY10067-661	CHIP CAPACITOR	0.1uF,25V
C31	PTY20292-310	E CAPACITOR	470uF,16V
C32	QETA1CM-106	E CAPACITOR	10uF,16V
C33	PTY10067-652	CHIP CAPACITOR	0.22uF,16V
C34	PTY10067-662	CAPACITOR	0.0068uF,50V
C40	PTY10067-661	CHIP CAPACITOR	0.1uF,25V
⚠ L1	PTY10067-701	LINE FILTER	
L2	PTY10067-702	BEAD INDUCTOR	
L21	PTY10067-703	COIL	
L23	PTY10067-704	BEAD INDUCTOR	
L24	PTY10067-705	BEAD INDUCTOR	
⚠ PHC1	PC817X1	PHOTO COUPLER	
JK21	YQ10531-570	DC JACK	
⚠ T1	PTY20080-541	SW TRANSFORMER	
⚠ F1	PTY10067-101	FUSE	250V,2A
SW21	PTY10067-531	SWITCH	
HS1	PTY10067-541	HEAT SINK A	
HS2	PTY10067-542	HEAT SINK B	
OT1	PTY10067-551	SCREW,X2	
TB1	PTY10067-561	TERMINAL 1,X2	
TB2	PTY10067-562	TERMINAL 2,X3	
HD1	PTY10067-571	TERMINAL HOLDER	